



JPRS Report

Science & Technology

***Europe
Economic Competitiveness***

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Europe

Economic Competitiveness

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SCIENCE & TECHNOLOGY POLICY

Riesenhuber Calls for Decentralization of EC Research

92P60097 Duesseldorf *HANDELSBLATT* in German
26 Feb 92 p 4

[Text] According to Federal Minister of Research Heinz Riesenhuber (CDU), small and medium enterprises are not sufficiently supported by the European Community.

In a conversation with the responsible commissioner, Filippo Pandolfi, Riesenhuber urged that subsidy programs be more decentralized in the future than they are now.

The minister of research called for the creation of more offices in the individual EC countries at which companies could apply directly for community funds.

This would eliminate in particular the language problem, which is a constant barrier, especially for smaller companies, Riesenhuber stressed.

In the planning of the Fourth EC Research Framework Program, which will presumably replace the current third program next year, the FRG Government wants to place emphasis on programs which are application-oriented and not specific to individual industrial sectors. The market economy must have priority, Riesenhuber stressed to EC Commissioner Pandolfi. A total of 20 billion German marks [DM] are planned for the Fourth EC Research Framework Program.

The key areas of EC research support should remain the sectors of information science and telecommunications, industrial and material technologies, biotechnologies and raw materials from plants. The minister of research demanded that basic research, which should remain basically reserved to the member states and scientific self-governing bodies, should be limited to exceptional cases in the EC framework program.

The EC should place greater emphasis on climate, environment and ocean research, he said.

Riesenhuber complained that the area of nuclear safety is not sufficiently covered by the current Third Framework Program. A common EC strategy, which also includes reactors with greater safety, is necessary, according to Riesenhuber.

For the period of 1990-1994 the funds for research in reactor safety are about DM400 million, in contrast to DM880 million in the previous five year period. Bonn regards these diminished funds as insufficient in view of the new tasks for assuring the safety of nuclear reactors in Eastern Europe. The funds for reactor safety must be increased by more than two-thirds, according to Riesenhuber.

Portuguese Science Policy Targets Explained

92BR0168 Paris *SCIENCES & AVENIR* in French Jan 92
pp 88-89

[Interview with Jose Mariano Gago, president of the Instrumentation and Experimental Physics Laboratory, by Luisa Costa Gomes: "Let Us Get Rid of Cobwebs"; French translation by Paula Martina and Ilda dos Santos]

[Text] Jose Mariano Gago is a physicist. He is also a lecturer and researcher, president of the Instrumentation and Experimental Physics Laboratory, and headed the National Agency for Scientific and Technological Research from 1986 to 1989. In his "Manifesto for Science in Portugal," published in 1990, he proposes solutions to make Portuguese research more dynamic.

Gomes: I think we can state dispassionately that science is lagging in Portugal. Is this lag chronic? Do we have any hope?

Gago: The lag has been chronic, but I do not see why it should be permanent. What caused it? I think one of the main factors has been the country's cultural isolation, in addition to the physical isolation of the people. This situation is changing, although not very radically. People travel more and are more aware of what is going on abroad, but on a limited scale: Portugal remains a peripheral country. There are few foreign researchers to be found in Portuguese scientific institutions. I think the situation could change faster with the present-day students, who travel more frequently in Europe, and with secondary schoolteachers, which would go a long way toward internationalizing Portuguese science.

Gomes: When you talk about internationalizing science, one gets the impression that you think chiefly of cooperation with the European countries.

Gago: The increase in EC financial resources in support of intra-European cooperation has no doubt resulted in privileged relations with those countries. As far as real cooperation between Portugal and the rest of the world is concerned, the situation is such that when we examine Portugal's scientific production, we see the United States stand out distinctly, even though France and Germany are at the top of the list.

Gomes: Why should we place Europe ahead of the rest of the world?

Gago: So far, we have been lacking the openness—not only in Portugal, but also in the other countries—needed to sustain cooperation with the rest of the world, in this case the United States and Japan, to the same extent or to the extent required by scientific opportunities. But this problem could become critical in Portugal's case, because if no financial resources are available to encourage scientific cooperation with the United States, such cooperation will not come about or will be due only to the will of particular individuals who have already established their network of personal contacts over the years. But all European countries already realize that a wider opening is necessary.

Gomes: In your "Manifesto for Science in Portugal," you state that it is essential to scientific development to think about demystifying our glorious 15th-century scientific and technical past.

Gago: The first condition for a successful scientific development strategy is to get rid of cobwebs. We cannot spend our time thinking that the present situation is transitory, under pretense that there was an era when miraculously and effortlessly we were geniuses. That would confine us to the

role of heirs without a future and that is the Portuguese peril. All the classical myths of "national science" arise from this. Instead of analyzing the electron, we would analyze the "Portuguese electron," the "Portuguese gene," etc. Another of these myths concerns the paradigm of "science for development," which consists of finding a miraculous combination of scientific specializations representing the "national course." However, there is no "national course"; all countries can perform well.

Gomes: But cannot a structure propitious to "producing" biologists be put in place?

Gago: Certainly, but that would not guarantee the existence of good biological research in Portugal. The interesting problems that we will have to resolve in biology over the next 30 years will probably have to do with biophysics...but will basic training in physics be adequate? What we find in countries that have recently experienced scientific development is that they invested equal amounts in all scientific sectors.

Gomes: Then, I conclude that the "remedy" for this lag must focus on basic measures and not on opportunistic ones or facades.

Gago: I think it is illusory to believe that profound reforms are introduced across the board. It is rather a whole series of discreet and inconspicuous measures requiring much perseverance. They are not the work of a single decisionmaking authority, because in orchestrating scientific development it is important to be able to count on the media, to be in a position to alert public opinion, and to have science museums and more sophisticated publicity...

Gomes: What specific problems do Portuguese researchers seem to you to have besides the shortage of money?

Gago: A shortage of money which moreover varies greatly depending on sector. But it is not so much the shortage of money but the difference in income compared to the other European countries that keeps foreign researchers from settling in our country. Besides, we are used to functioning with very small teams and that does not allow us to arrive at conclusions in the average time normal in other European countries.

[Box]

Key Figures on Research

Portuguese researchers must make do with little. This is the principal lesson that emerges from the research figures on this country which is both small—compared to European averages—and at the bottom of the gross domestic product (GDP) hierarchy. Portugal is the caboose and follows Greece and Ireland in terms of the percentage of GDP devoted to research. In absolute value, its research budget, a little less than 2 billion French francs [Fr], are to be contrasted with Germany's Fr132 billion, or even with Belgium's a little over Fr10 billion for the same population level. However, these findings must be qualified. Portugal seems very dynamic, as shown by its remarkable growth—the highest in the EC—in terms of scientific production (up 67 percent since 1982, only Spain has done better). According to an OECD expert, this dynamism comes from

a strong political will, despite serious difficulties in research organization. Seeking to make up for its shortage of resources, Portugal has known how to use a large part of its European appropriations to fund its research. This contribution is said to constitute the main factor of growth in domestic R&D expenditures (DRDE).

Key Figures on Research

Domestic R&D expenditure (DRDE) (1989)	FR1.8 billion
DRDE/GDP (1989)	0.50%
DRDE funding (1988)	
State	63.5%
Industry	26.8%
Foreign	2.7%
Other	7.0%
Number of researchers (1989; full-time equivalent)	5,000
Number of researchers per 1,000 active population (1989)	1.1
Share of scientific production in Europe (1988)	0.4%
Patent registration in Europe (1988: percentage of EC total)	0.1% (up 240% since 1982)
Technological balance of payments (1985)	Fr190 million deficit

(1) Share of scientific publications signed by at least one researcher working in a Portuguese laboratory relative to total articles signed by EC researchers.

(2) Balance of exchanges of technological patents and licenses, engineering services, and industrial R&D, exclusive of exchanges of products and merchandise. This is an imperfect indicator of international flows of technology.

Dutch Research Institutes Withdraw From JESSI

92BR0175 Rijswijk POLYTECHNISCH WEEKBLAD
in Dutch 2 Jan 92 p 1

[Article: "FOM and STW Withdraw From JESSI"]

[Text] As of 1 January, the organization for Basic Research on Materials (FOM) and the Technical Sciences Foundation (STW) have discontinued their participation in the JESSI [Joint European Submicron Silicon Initiative] research program. They feel that both the Dutch authorities and the European Commission are showing insufficient interest in basic research in the field of chip technology and have failed to appropriate sufficient funds.

Italy: High Technology Export Law Approved

92MI0275 Rome AIR PRESS in Italian 5 Feb 92
pp 201-202

[Text] On 31 January, the 10th Senate Commission for Industry, Commerce and Tourism, approved Bill No. 3191—"Regulations for the Control of the Exportation and Transit of High Technology Products," resulting from the combination of Bill No. 5073, "Regulations for the Control of Exportation and Transit of High Technology Products," moved by Christian Democrat representatives, Giuseppe

Zamberletti and Flaminio Piccoli, and Bill No. 5472, "Regulations for the Control of Exportation and Transit of Products and Civil Technology for Military Application," moved by a group of representatives led by the Honorable Giuseppe Crippa of the Social Democratic Party. Bill No. 3191 had previously been approved by the Third Commission of the House (Foreign and Community Affairs) on 23 January.

State Security

According to the first of the 16 articles that comprise Bill No. 3191, the exportation and transit of products and technology should, apart from ensuring the nonproliferation of military technology and products, also conform to those principles that form the basis of national foreign policy and be in keeping with the State's fundamental interests regarding security. Article 1.3 of the bill also considers "exportation of technology" to be any exchange of information or data that could be used in violation of any existing law, or of any agreements or international conventions to which Italy adheres. At the same time, Article 1.2 provides for the authorization and control by the state of the export or transit of products or technology, whether under a permanent or temporary permit. "A list of those goods whose export and transit are subject to authorization" shall be prepared, and updated at least every six months, under a decree promulgated by the minister for foreign trade together with the minister for foreign affairs, after consultation with a technical committee nominated by the minister for foreign trade (Article 3.1).

Article 3.2 provides that the list shall be updated:

- a) in accordance with those principles established under Bill No. 185 of 9 July 1990; (Editor's note—This bill regulates the export of armaments).
- b) taking in account the evolution of industrial production and technology;
- c) in accordance with those agreements and international conventions on high technology and nuclear, missile, and chemical nonproliferation, to which Italy adheres or is a party to;
- d) in compliance with changes in EC regulations;
- e) in keeping with those provisions already in force in EC countries.

The Importance of CISD

Apart from the preparation and updating of the list, the bill provides, in Article 5.1, for the institution by the Ministry of Foreign Trade of an "advisory committee on the exportation and transit of products and technology." Under Article 5.2 this committee will "advise the minister of foreign trade of its recommendations on authorizations to be granted within 90 days of the date of the request. The committee" may (Article 5.3) recommend whether any single authorization is also to be valid for consecutive operations of a similar nature, or whether it is to be limited only to the operation for which the request was made. Article 5.4 states that the advisory committee shall be composed of two

representatives from the Ministry of Foreign Affairs, one of whom shall hold the office of chairman; two representatives from the Ministry of Foreign Trade, one of whom shall hold the office of secretary; and one representative each from the ministries of Defense; Industry, Commerce, and Crafts; Universities and Scientific and Technological Research; Finance, and the Treasury. The committee is to be renewed every three years.

As far as government control and coordination is concerned, great importance has been attributed to CISD [Interministerial Committee on the Exchange of Materials for Defensive Armaments] as per Article No. 6 of Law No. 185 dated 9 July 1990, whose role it will be to apply the above-mentioned law (Article 4.1). In accordance with Bill No. 3191 (Article 4.2), CISD is also required to:

- a) formulate and update the list of countries where the exportation of particular categories of products and technologies is restricted;
- b) formulate, according to Law No. 185 dated 9 July 1990, the list of countries that may be authorized by the Ministry of Foreign Trade provided that the importer's facilities are inspected at his approval;
- c) modify the exportation of goods listed as per Article 1.3 (of the above-mentioned bill);
- d) examine within 30 days claims submitted by applicants who have been refused an authorization to export products and/or technology subject to Article 1, or when authorization has been granted subject to the imposition of restrictions.

Authorization Procedures

Authorization, whether permanent or temporary, for the exportation or transit of products and technology contained in the list, shall be granted (Article 8.1) by the Ministry of Foreign Trade, "after consultation with the advisory committee." Express reasons and motivation for any refusals to grant authorization shall be given. Article 8.2 provides that if no decision has been given within 60 days of an application for authorization being lodged, the applicant may approach the CISD through the Ministry of Foreign Trade, which shall make a final decision within 30 days.

Article 2 of the Bill (General Authorization) sets out the procedures to be followed for authorization. Article 2.1 specifies: "The granting of authorization for the exportation and transit of products and technology whose value is less than that established by a special decree of the minister for foreign trade and the minister for foreign affairs, to be promulgated within 90 days of this bill coming into force, and in conformity with those agreements and international conventions to which Italy is a party, is subject to simplified procedures, which are to be established under the decree mentioned above. Article 2.2 provides for a general authorization for the exportation and transfer to the United States, Canada, Australia, Japan, Sweden, Norway, Switzerland, Turkey, Finland, and Austria, of certain categories of products and technology to be defined by a decree of the minister of foreign trade, which decree will also define any

limitations or conditions to be imposed, to be promulgated within 90 days of the entry into force of the bill.

"Final Proof"

Article 10 (Subsequent Controls) of the bill provides, under Article 10.1, that "exporters must furnish proof to the minister of foreign trade of the actual arrival in the country of destination of the authorized products that have been dispatched." The form and terminology to be adopted for such proof will be determined by a decree of the minister, to be promulgated within 90 days of the entry into force of this bill. Article 10.2 provides that final proof to be furnished as to the eventual civil use of the products and technology exported in terms of this bill shall be in accordance with those regulations laid down by international organs, and to which Italy is obliged to conform.

Paragraph 1 of Article 12 lays down that: "Any person who engages without due authorization in the export or transit of the products and technologies referred to in Article 1.2 shall be liable to two to six years' imprisonment or a fine of 50 to 500 million lire, unless a more serious crime is involved, while" (12.2) "the goods illegally exported within the meaning of paragraph 1 shall be confiscated."

Germany: Riesenhuber Urges EC R&D Reorganization 92MI0281 Bonn DIE WELT in German 12 Feb 92 p 23

[Article by Norbert Lossau: "A More Streamlined Organization"]

[Text]

Federal Research Minister Heinz Riesenhuber presented a memorandum on European research policy in Bonn yesterday. It sets out the direction that, in the federal government's view, EC research policy ought to take in the future. The timing of this German position paper is no accident. After all, the EC Council will be considering this year the Commission's proposal for the fourth framework program for European research funding, which will probably involve funds amounting to more than 20 billion German marks over a five-year period.

The memorandum advocates focusing EC research programs more sharply than before and setting priorities. This would reduce the risk of research projects being "over-subscribed," Riesenhuber said. If funding programs were not specific enough, a flood of applications would pour in, most of which would have to be turned down. A small- or medium-sized enterprise that had once or twice round taken



So stellt sich Bundesforschungsminister Heinz Riesenhuber die prozentuale Verteilung der EG-Forschungsmittel in der Zukunft vor

GRAFIK: DIE WELT

Breakdown of EC Funding

This is how Federal Research Minister Heinz Riesenhuber sees the percentage breakdown of future EC research funding. Chart: DIE WELT

Key: 1. Research and Development as Proposed in the German Memorandum on European Research Policy 2. Information and communications technologies 3. Industrial and materials technologies 4. Biotechnology, renewable raw materials 5. Climate, environment, the sea 6. Fusion energy 7. Nuclear safety 8. Renewable energy 9. Medicine 10. Mobility, human capital 11. Developing countries 12. Other

the trouble to draw up elaborate applications for funding would then probably give up altogether out of frustration. That could not be what funding policy was about.

A further demand made in the memorandum was that projects receiving EC funding should be first and foremost application-oriented, though still in the precompetitive stage. Priority should be given to projects falling under the category of "preventive research." This would include, for example, medical, environmental, and nuclear safety projects.

Basic research is currently allowed to account for not more than 10 percent of a project in receipt of EC support. Riesenhuber sees no reason for increasing this amount: "Basic research should not be brought within the EC's terms or reference." It could be funded much more effectively at national level.

In this connection, Riesenhuber referred to the apparently different European interpretations placed on the concept termed "subsidiarity," on which all the EC partners had after all agreed. Riesenhuber took it to mean: "Work that can be done at national level should be done at national level."

The memorandum therefore also calls for a decentralization of EC research management. National EC offices in the various countries ought to be direct contact points for researchers. Riesenhuber could, for example, imagine the DFG [German Research Association] taking on this role vis-a-vis the German universities.

Overall, Riesenhuber said that research funding showed "structural deficits" that could be overcome by a more streamlined organization. Why, for example, should it not be possible for the "EC's very fragmented" climate research to be just as well coordinated as European fusion research already was?

France's CNRS, University of Rennes Renew Collaboration Agreement

92WS0326B Paris AFP SCIENCES in French
23 Jan 92 p 4

[Article: "University of Rennes-I and CNRS Renew Their Scientific Collaboration"]

[Text] Rennes—The University of Rennes-I and the CNRS [National Scientific Research Center], linked since 1987 by a framework agreement, have renewed 10 joint-project agreements under which the CNRS will provide the university with human resources and financial aid.

Rennes-I stands out among the French universities because of a rate of collaboration with national research organizations approximately 14 percent above the national average. This scientific collaboration involves 23 research teams, 615 members of teaching faculties and researchers, and 659 graduate students. Operating on an annual budget of 52 million francs, the teams collaborating with CNRS have worked on 502 pieces of research in different scientific domains (mathematics, physics, chemistry, and life sciences) since 1987.

The future objective of these agreements is to strengthen the existing units of collaboration, decentralize the teams, and develop technology transfer operations with enterprises.

Max-Planck President on Budget, New Institutes, Sites 92WS0331A Munich SUEDEDEUTSCHE ZEITUNG in German 30 Jan 92 p 50

[Interview with Professor Dr. Hans Zacher, president of the Max-Planck Society, Munich, by Martin Urban of the SZ: "Future in Berlin?"]

[Text]

[Urban] It is becoming too crowded in the Munich residence of the Max-Planck Society. Instead of moving within Munich, shouldn't it simply return to Berlin where it was founded and where most of its biggest names worked: Max Planck, Albert Einstein, Otto Hahn, just to mention a few?

[Zacher] The alternative of moving right away or later does not exist. The question is: Will the Max-Planck Society remain in Munich or will it move to Berlin? If we here in Munich were to get different accommodations, it could only be the "final" accommodations. Of course, it is impossible to talk about forever.

[Urban] But the orientation of the future activity of the Max-Planck Society is in Eastern Germany, where 15 to 20 new Max-Planck institutes are to be created. This is much easier to organize from Berlin than from the edge of the FRG, after all.

[Zacher] Cities in Eastern Germany are easy to reach from Munich as well. Other reasons will play a prominent part in the decision, such as the question of how close a research institution such as the Max-Planck Society should be to politics. Another consideration is the costs of moving. The society's history in connection with Berlin does play a role, of course. The question of Berlin or Munich is controversial within the Max-Planck Society.

[Urban] The top echelon of the Max-Planck Society, at least, would have to be close to politics, since it is quite significantly a matter of political decisions, after all, primarily money. In your 1.3 billion 1992 budget you received 98 million German marks [DM] for work in the former GDR. Is that enough?

[Zacher] Unfortunately, no. Initially I should tell you that last year we established 29 working groups in the new Laender. We took over two branches of institutes that exist here in the west—working groups for plasma physics in Berlin and for extraterrestrial physics in Potsdam—and established a new Max-Planck Institute. In the coming weeks a second institute is to be established.

[Urban] The first institute is the one for microstructure in Halle, which already existed as an academic institute. And the second?

[Zacher] The second is an institute for colloid and interface research, whose groups at present are working in Teltow, Adlershof and Freiberg.

[Urban] And to what extent is there not enough money?

[Zacher] Because we are seeing that the reorganization of the institutes is extraordinarily costly. Let me mention just one example for Halle. We must replace all the power lines in the institute building. The existing installations do not correspond with our norms and could even influence the measurement results.

[Urban] How much more money than you expected to get do you need?

[Zacher] In 1992 DM98.5 million were made available to us, and for 1993 we have reported the need for 187 million. Furthermore, we would urgently need special programs for personnel exchange, for example. We should have the opportunity of sending abroad as many researchers as possible, whom we employ in the new Laender, to stay. After their long isolation they must experience how research is done in western countries. Conversely, we would need opportunities to bring researchers from the West into the new Laender. All of this costs a great deal of money.

[Urban] What has become of the continuing plans? For example, there is the idea of a Max-Planck institute for gravitational research, which is to carry Einstein's name.

[Zacher] There has been no decision about that yet. Several new projects are in the biological-medical sector. In the area of the chemical-physical-technical sector there is only one to be mentioned among the new projects, an institute for non-linear dynamics.

[Urban] Nonlinear dynamics can also be called chaos research. Where will that institute be located?

[Zacher] We have not yet decided on questions of location.

[Urban] And how are things in the humanities?

[Zacher] In the humanities we have a double set of problems. At the moment I would not like to say anything about the seven centers with which we have been entrusted by the scientific council. Otherwise I would disturb a discussion process which is close to being concluded. But we also have our own plans for new Max-Planck institutes, one for economic research, for which preparations have already largely been completed, and one for European Integration Research. Other than that, we have the task of providing recommendations for the future of scholarly centers outside the Max-Planck Society as well. I assume that by summer we will have gotten so far as to giving such recommendations.

German Applied Systems Engineering Institute Founded
92MI0332 Bonn *TECHNOLOGIE-NACHRICHTEN*
MANAGEMENT-INFORMATIONEN in German
18 Feb 92 pp 12-13

[Text] ISYTEC [Institute of Applied Systems Engineering] is the name of a new research institute in the University of Bremen's technology park, which is funded jointly by the Hanseatic city and partners from industry.

The shareholders of the institute, which is run in the form of a GmbH [limited liability company], include not only the Free Hanseatic City of Bremen but also Bremer Vulkan AG, Daimler-Benz AG, Atlas Elektronik GmbH, BLG [Bremen

Warehouse Corporation] AG, DST [German Systems Engineering] GmbH, LSW Mechanical Engineering Works GmbH, OAS [O.A. Schwimmbeck] GmbH, and OHB [Orbital and Hydrotechnology] GmbH.

These very diverse companies have a common interest in the research topic of the new institute. The characteristic feature of systems engineering is that it solves problems from a viewpoint that takes account of the whole of the system concerned. Consideration is given not only to purely technical problems but also to economic, sociological, and ecological aspects. Originally developed for the aerospace sector, systems engineering is in increasing demand in other fields too, for example in automobile production, shipbuilding, transportation, and environmental engineering.

In addition to work commissioned by customers—primarily its own shareholders in the first instance—ISYTEC is seeking nationally and internationally funded joint research projects with industrial partners. As a complement to this work, ISYTEC will also hold scientific seminars on systems engineering. There are currently six scientists working under the direction of Dr. Uwe Kirchhoff, and this number is to double in the foreseeable future. Further expansion will depend on the institute's economic growth, as it is to be self-financing in the long term.

Further information can be obtained from ISYTEC, Tel. 0421/22092-0, Fax 0421/22092-10.

France: ONERA, Air Force Form Research Lab
92WS0354B Paris *AFP SCIENCES* in French
6 Feb 92 p 13

[Unattributed article: "Creation of a Research Laboratory at the Air Force School"]

[Text] Paris—The Air Force School in Salon-de-Provence will soon have a research laboratory, as a result of an agreement signed on location on 6 February by Air Force Chief of Staff, General Lanata, and ONERA President, Mr. Jacques Benichou.

By the year 2000, some 50 engineers will be carrying out their teaching and research activities in the fields of flight mechanics, optronics, airborne radars, and man-machine interfaces, the press department of the Air Force (SIRPA-Air) indicated. The creation of the laboratory "confirms the Air Force School's determination to follow most closely the progress of aerospace technologies."

Sweden Opens Research Office in Brussels
92WS0357B Stockholm NY *TEKNIK* in Swedish 30 Jan 92
p 4

[Article by Hans Dahlquist]

[Text] The Technical Science Research Council together with the other five research councils will open an office in Brussels. The aim is to expand our knowledge of EC research. The research office in Brussels should be open by summer. The position as head of the office is already being advertised.

"This is especially urgent because Sweden is not a member of the EC. We do not have the same access to information

that member countries do," said Mats Ola Ottosson of the Natural Science Research Council who is also chairman of the working group appointed by the six research councils to make preparations for the Brussels office.

The office will acquire knowledge about the EC's research and educational programs, establish contacts, pass on information to Sweden and assist and represent the Swedish research councils.

The annual cost of 2 million kronor will be divided equally among the six research councils.

In view of the increased opportunities the office can create for Swedish participation in European research programs this money will be well spent, in Ottosson's opinion.

The government, which has been kept up to date on the plans, is positive about the research office in Brussels.

A final decision has not yet been made on the purely practical aspects of carrying out the work in Brussels. Discussions on cooperation are being held with the British, French and German research council offices.

The six Swedish research councils cover technical science, natural science, social science and the humanities, forestry and agriculture and medical research.

The Coordinating Board of the Swedish Research Councils is a seventh council but the government wants to abolish it.

The main job of the research councils is to distribute funds to Swedish researchers and projects.

France: Defense, Research Ministers Outline Goals
92WS0376A Paris AFP SCIENCES in French 13 Feb 92
pp 2, 3

[Article: "France: Civilian and Military Researchers Share Same Goals"]

[Text] Paris—Scientific research and discovery, the understanding of phenomena, and their applications in every field are the same for both civilian and military researchers. This was the gist of a statement made on 12 February by Defense Minister Pierre Joxe and Research Minister Hubert Curien.

In the Council of Ministers, the two ministers submitted a joint statement on information exchange between civilian and military research. Exchanges are numerous, constant, close, and often widely ignored, but they go far beyond the fields of space and nuclear science, which are commonly thought to be the only areas affected. Research in electronics, robotics, moving bodies, informatics, medicine, lasers, composite materials, scientific calculations, etc. have immediate or easily adaptable applications whether they come from civilian or military laboratories.

Also, the two ministers noted that of the 82 billion French francs [Fr] the state spent on research and development in 1991, Fr48 billion was in the civilian budget compared to Fr34 billion in defense. For 1992, the civilian share has been increased to Fr51 billion, while the military portion is more or less unchanged. Nevertheless, in a rapidly changing world one must prepare against adverse eventualities. Therefore, "in the adaptation of our defense apparatus currently under

way, preparations for the future reflect the priority given to defense-related research," the Council of Ministers communique notes.

The already significant and confirmed ties between the Defense Ministry and the scientific community are growing, as are exchanges of information and equipment-sharing. Examples of dual use include the "Connection Machine," a huge hyper-parallel computer located in the Central Technical Arms Depot (ETCA) at Arcueil used for simulation studies and decision assistance, and the big Crays used for research on materials and ultra-stable lasers. But the same also holds in research on fiber optics, artificial intelligence, composite materials, and ceramics, all of which are "civilian" and "military" at various times.

At a time when the nation needs advanced observation and intelligence-gathering instruments (the Spot and Helios satellites), the General Delegation for Armaments (DGA) and the National Center for Space Studies (CNES) are going to coordinate their research in the fields of space and hyper-sonic propulsion.

"All branches of science are involved," said Mr. Curien. "Basic research is the same whether the goal is a microwave oven, 'hardened' chips for military satellites, or nuclear warheads." "The linkage between civilian and military scientific research is a concern of policy in both defense and research," said Mr. Joxe. "We must lay the groundwork today for what we will need 10 or 40 years ahead. Some of our airplanes have been flying for 20 years. We are building ships that will still be in operation 30 years from now. Everything depends on our scientific capacity and its further improvement."

Among the decisions announced on 12 February: Fr1.3 billion for strengthening research and training facilities located on the Palaiseau plateau near the Ecole Polytechnique and the National Higher School for Advanced Technology [ENSTA], doubling the number of conscripts in the "scientific contingent," and expanding the regional centers where civilian, military and industrial laboratories work together.

Finally, according to Messrs. Curien and Joxe, scientific and technological cooperation with the member states of the CIS is needed to expand ties with their research centers and industries. Government financial support is envisioned for this, but "France is not about to promote a brain drain to these countries," Mr. Joxe indicated. "France does not have to 'walk the streets' to get scientific work from the Soviets. But there are possibilities of work there, if only in the field of dismantling strategic nuclear missiles."

Here is the text of the communique from the Council of Ministers:

"In 1991, the state devoted Fr82 billion to research and development, of which Fr48 billion was under the civilian research and development budget and Fr34 billion under military research and development. In the adaptation of our defense apparatus currently under way, preparations for the future reflect the priority given to defense-related research.

"There are already significant ties between the Ministry of Defense and the scientific community. The defense minister is assisted by a defense scientific council. The 'science and defense' colloquia held each year promote exchange of information between scientists, industrialists and the military.

"The Ministry of Defense calls on the scientific and technological expertise of civilian organizations. In the space domain, for example, an agreement has been concluded between the DGA and the CNES to coordinate their research activities. A program of research on hypersonic propulsion has been launched by the Defense Ministry, the Ministry of Research and Technology, and the CNES.

"Special attention will be given to increasing the defense spin-offs of civilian research in high-priority fields including electronic components, materials, robotics and production technologies.

"Expansion of regional centers, like Toulouse and Bordeaux, where laboratories, teaching establishments and industries collaborate to the benefit of both military and civilian research, will be promoted. The research and training facilities on the Palaiseau plateau near the Ecole Polytechnique and the ENSTA will be strengthened over the coming years, thanks to Fr1.3 billion in investments by the Ministry of Defense.

"International cooperation will be encouraged in these domains. In particular, the government will provide financial support for scientific and technological cooperation with members of the CIS in order to promote partnership arrangements with the research centers and industries of those states."

Sweden: Drop in Research Spending, Government Support

Drop in Research Seen

92WS0382A Stockholm NY TEKNIK in Swedish 16 Jan 92
p 4

[Article by Jan Melin: "Sweden No Longer First in Research Spending"—first three paragraphs are NY TEKNIK introduction]

[Text] Sweden is no longer in the lead with regard to investment in research and development.

Instead Japan is now the country that spends the largest percentage of its total resources on R&D.

Sweden has slipped to fourth place.

In 1987 Sweden invested more of its resources in research and development than any other country in the world.

Three percent of the gross national product (GNP) went to research.

The countries just behind Sweden at the top of the list were Switzerland, the United States, Japan and West Germany. They all spent around 2.8 percent of their GNP on research and development.

Now Japan has taken the lead. This is shown by statistics from the OECD and SCB [Central Bureau of Statistics].

These latest available figures are from 1989.

There is nothing to indicate that Sweden has improved its investments since then. According to preliminary estimates for 1991 Swedish R&D investment continued to decline after 1989.

In 1987, when Sweden was the world leader, R&D expenditures totaled approximately 42 billion kronor, figured in 1991 kronor.

In 1991 research investment had dropped to around 36 billion kronor.

In the first part of the 1980's, when R&D investment rose steadily from year to year, business firms were primarily responsible for the growth. In a mini-survey NY TEKNIK conducted in the fall, most big Swedish firms claimed that they had not cut down on R&D. But that was in relation to sales. As these have dropped for most companies in recent years, an unchanged R&D percentage really means a reduction in absolute figures, as shown by the SCB estimate.

In 1991 business firms, especially manufacturing industries, accounted for 63 percent of all research and development activity. Universities and technical colleges were responsible for 33 percent while the public sector's share was around 4 percent.

When the reduction in Swedish research activity started in 1987, 67 percent came from business firms and 29 percent from colleges. Thus the universities' R&D share increased as that of business firms declined.

The largest part of private firms' R&D, around 85 percent, involves development work, in other words research aimed at producing new products, processes and systems.

At universities and colleges, on the other hand, pure basic research and applied research account for a corresponding 85 percent.

State Technology Support Reduced

92WS0382B Stockholm NY TEKNIK in Swedish 16 Jan 92
p 5

[Article by Harry Amster: "Reduced State Support for Technical Development"—first two paragraphs are NY TEKNIK introduction]

[Text] The government is cutting state support for technical development. The Business and Technical Development Agency's funds will be cut by 140 million kronor in this year's budget.

National research will lose 55 million kronor which will go to EC research instead.

The curtailment of the Business and Technical Development Agency, Nutek, is continuing.

Back in November the government's economic policy proposal indicated that the development program for small companies would be cut by 70 million kronor.

The technological development funds for the new technology and new products programs would also be affected. And now it has been announced: 70 million will be cut. This adds up to a total cut of 140 million kronor.

The Ministry of Industry is hoping that industry will step in and invest instead.

Nutek is the result of the merger of three state boards: the National Board for Technical Development (STU), the National Industrial Board (SIND) and the National Energy Board (STEV).

Birgit Erngren, undersecretary in the Ministry of Industry and former head of STU, feels Nutek must find its platform if it is to avoid further cuts:

"I think it is strange that the merger was implemented when three politically strong nonsocialist parties were opposed to it. The government cannot just sit back in silence now when the consequences for Nutek are turning out to be extremely negative," said Erngren.

The cuts are entirely in line with the industry minister's perception that the old STU is the core of the new agency:

"STU is the central and important activity," Per Westerberg told NY TEKNIK last fall (1991:49).

Nore Sundberg, Nutek's chief, hopes there will be no more cuts as the agency needs to work in peace:

"This means a reduction of our ability to help companies. But I know there is a budget deficit of 70 billion kronor and everyone must do their bit," said Sundberg.

Approximately 20 people will receive dismissal notices as a result of the cuts, most of them in units that deal with small business matters.

"We will have to trim our sails in the future and we will be unable to provide the same level of assistance and service that people in this sector are accustomed to," said Sundberg.

The budget increases support for EC research by 83 million kronor, bringing it up to 211 million. Part of this, more precisely 28 million kronor, is new money. And part comes from reallocating national research funds to EC research.

The money has been taken from Nutek, the program for materials technology, the Swedish Council for Applied Research (TFR), the energy research program and building research.

The Ministry of Industry has a budget of 4.304 billion kronor, a reduction of 383 million compared with the previous budget. The biggest items are technological development, which will get 1.887 billion, and energy, 1.054 billion.

A common feature in the budget is that state funding for technological R&D will be general instead of selective.

One example is the dissolution of the plant technology delegation which stressed subcontractor development.

TFR will be able to continue in accordance with previous plans except for the money that will go to EC research instead.

The industrial design subsidy remains but the grant to the Swedish Industrial Design Foundation will be eliminated in the next budget.

"If Nutek considers design interesting it can continue to subsidize it. Other ways to finance it might also be found," Birgit Erngren said.

The government regards information technology as extremely important and feels that "Nutek should give this area a higher priority than it has in the past while R&D in other well-established technology areas should be able to get along without state support."

In addition to information technology, biological engineering, biomedical engineering and environmental engineering were cited as areas in which Sweden should invest.

"There is not enough money to benefit research in all areas," Erngren noted.

The government's first research bill will be presented in the spring of 1993. In it the new minister will indicate which research areas are important to invest in and strike a balance between national and international research.

Sweden: New Council for Interdisciplinary Research

92WS0383B Stockholm NY TEKNIK in Swedish 6 Feb 92
p 4

[Article by Harry Amster: "New Council for Interdisciplinary Research"—first two paragraphs are NY TEKNIK introduction]

[Text] A new interdisciplinary research council will be formed on 1 July. At the same time FRN [Coordinating Board of the Swedish Research Councils] will be terminated.

"The new council will not work," said FRN's chief secretary, Hans Landberg.

At the end of last year the government submitted a bill concerning the elimination of the Coordinating Board of the Swedish Research Councils. Responsibility for interdisciplinary research would be assumed by three research councils: the Council for Research in the Humanities and Social Sciences (HSFR), the Medical Research Council (MFR) and the Natural Science Research Council (NFR).

Many researchers and universities have protested the proposal and expressed fears that this might be the end of interdisciplinary research.

The government is now reversing itself and a proposal from the Education Ministry calls for the formation of an interdisciplinary research council by HSFR, MFR, NFR and the Council for Applied Research, TFR. The members, the majority of whom will be researchers, will be appointed by the various research councils.

This was the response of Nils Karlsson, political adviser at the Education Ministry, to the criticism of the elimination of FRN:

"There have been fears that interdisciplinary activity would be curtailed. That was not our intention and we are presenting this proposal because we were influenced by the criticism."

The new council will be provided with the same resources for interdisciplinary work as FRN, around 75 million kronor. Plus the money the individual research councils formerly set aside for interdisciplinary activity.

FRN Secretary Hans Landberg considers the proposal for the new council very strange:

"It will not work. It is just an attempt to disguise a retreat. A very peculiar proposal. The research councils will sit and guard their own preserves," Landberg said.

Carl Nordling, chief secretary of NFR, is not pleased either:

"If the proposal wins support it means we will lose the 3 million kronor we devote to interdisciplinary research. We think we are managing the money well as it is."

Bo Sarlvik, chief secretary of HSFR considers the elimination of FRN unfortunate:

"It is my strong personal opinion that FRN handles interdisciplinary research very efficiently and I cannot see that there is any special advantage in phasing out FRN and creating a new council."

In contrast, TFR office manager Anne-Marie Pilotti sounded a positive note:

"The important thing is to have interdisciplinary research taken care of. That is the government's attitude and I will not comment on the termination of FRN."

France: Increased ANVAR Aid to Small Business in 1992

92WS0397A Paris AFP SCIENCES in French 20 Feb 92
pp 1, 2

[Article entitled: "France Allocates 1.584 Billion Francs to Innovation in 1992"]

[Text] Paris—The government has allocated the National Agency to Upgrade Research (ANVAR) 1.584 billion French francs [Fr] this year to pursue its support of all forms of innovation. The money is earmarked in particular for small and medium companies, said ANVAR's CEO Henri Guillaume on 18 February.

ANVAR's support proved especially effective in 1991, when Fr1.447 billion went to underwrite 3,674 projects. Funds were used in particular to help small businesses hire 483 researchers, to facilitate the development of new products or processes and the use of new technologies.

"All industries are now interested in innovation," stressed Mr. Guillaume. "New technologies are cropping up not only in cutting edge fields such as electronics, computers, and new materials, they are spreading everywhere." And he announced that in 1991, ANVAR granted 60 percent of its subsidies to traditional-industry companies whose production facilities incorporate as much as 20 percent of advanced technologies.

The chief executives in those industries realized that new production methods and new processes would enable them to capture substantial export-market shares (growth rates of up to 60 percent in five years). "In tough economic times, strategies to promote innovation are still a priority," said Mr. Guillaume. "Companies no longer sacrifice research when they are struggling. They have realized that their earlier attitude resulted from a poor assessment of competition and markets." Proof of his assertion is the fact that company-funded research and development expenditures grew 7 percent in 1991.

A detailed study by ANVAR of 800 of its 1991 case files showed that 56 percent of the innovation occurred in traditional industries, either through partnerships with large public research laboratories (73 percent) or with other companies (27 percent).

ANVAR promotes innovation in France through its 324 prospectors, its delegations, and its network to disseminate technology, which now has facilities in 10 of France's 22 regions. But the agency is also interested in Europe, via the EUREKA program, whose presidency will revert to France next 22 May.

ANVAR has spent Fr32.2 million since April 1990 setting up partnerships between French and European firms in the computer, electronics, biomedical, and pharmaceutical industries. And it allocated Fr46.6 million to the funding of EUREKA projects in 1991.

Now that all European countries have made innovation assistance part of their research and development policy, ANVAR is going further by helping set up a European network to promote innovation. It has signed agreements to that effect with its Finnish, Spanish, British, Norwegian, and Dutch counterparts.

Changes in the Number of Innovation Subsidies Since 1980

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Company APIs*	952	1,316	1,286	1,296	1,143	1,201	1,208	1,510	1,794	1,790	1,656	1,636
Company ASIs	-	-	6	48	320	1,110	1,475	1,210	1,116	1,016	1,000	957
Totals	952	1,316	1,292	1,344	1,463	2,311	2,683	2,720	2,910	2,806	2,656	2,593
Transfer subsidies	56	61	96	148	168	153	176	212	178	105	148	164
SRC*	-	-	-	2	52	66	60	62	63	37	40	57
Independent inventors	39	52	40	45	89	187	212	285	179	216	178	130
Young people	-	-	-	377	405	1,347	932	1,114	1,085	1,077	906	730

Changes in the Number of Innovation Subsidies Since 1980 (Continued)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total innovation subsidies	1,047	1,429	1,428	1,916	2,177	4,064	4,063	4,393	4,415	4,241	3,928	3,674

*API: Company subsidies, hiring of researchers, COFACE/ANVAR *ASI: Assistance to innovation departments

*SRC: Research contractor companies

Changes in the Amounts of Innovation Subsidies Since 1980

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Company APIs*	527.4	638.1	601.1	754.8	733.6	926.3	712.3	794.2	932.7	1,102.4	1,102.5	1,095
Company ASIs*	-	-	0.6	4.9	17.6	40.1	63.8	65.9	67.6	74.8	106.3	121.7
Totals	527.4	638.1	601.7	759.7	751.2	966.4	766.1	860.1	1,000.3	1,177.2	1,208.8	1,216.7
Transfer subsidies	19.3	18.7	28.9	65.4	66.7	64.2	86.6	72.6	42.7	22.5	80.7	92.3
SRC	-	-	-	0.9	40.3	50.5	54.6	51.6	88.5	101.1	101.9	119.8
Independent inventors	1.5	2.7	1.4	1.9	5.5	10.1	12.7	16.9	8	12.3	9.9	5.8*
Young people	-	-	-	2.2	3.1	11.4	10.3	13.4	15.6	16.3	13.9	12.5
Total innovation subsidies	548.2	659.5	632	830.1	866.8	1,102.6	940.3	1,014.6	1,155.1	1,329.4	1,415.2	1,447.1

*API: Company subsidies, hiring of researchers, COFACE/ANVAR

*ASI: Assistance to innovation departments

*SRC: Research contractor companies

*Excluding FNAFI [National Federation of the Association of French Inventors] subsidies: Fr0.4 million

CORPORATE ALLIANCES

Bull's President Defends Alliance With IBM

Duesseldorf *HANDELSBLATT* in German 7-8 Feb 92 p 15

[Article by Rolf H. Fricke: "Bull Group: Strategic Alliances Protect Computer Company's Future—Interview With Francis Lorentz: 'It Is Out of the Question That IBM Will Gain a Majority Interest Here'"]

[Text] Paris, 6 Feb—The investment by world computer market leader, IBM, in the French state-controlled computer company, Bull, clearly does not mean the beginning of the end of Bull's independence. As the president and general manager of the Bull Group, Francis Lorentz, said in an interview with *HANDELSBLATT* in Paris, it is "out of the question that IBM will gain a majority interest here." As majority stockholder, the state wants to preserve Bull's independence, he said. On the other hand, this does not necessarily mean that the state must hold the majority of stock in the company, he added; the objectives of the main stockholder could potentially be safeguarded by a blocking minority as well.

In addition, Lorentz said, IBM does not even want control over Bull. Rather, the Americans are interested in focusing their own strengths, in a concentration process, he said. External growth beyond cooperative agreements and small investments in other companies is clearly not on the agenda in Armonk. Lorentz added that besides the antitrust authorities in the United States, the European Commission in Brussels and in France would not permit that sort of takeover of Bull.

According to Lorentz, IBM will have a 5-10 percent interest in Bull capital. This transaction could bring capital amounting to around \$100 million into the company. At present, the state holds 76 percent of the Bull stock, while 17 percent is in the hands of the France Telecom telephone company, which is also state-controlled. For a year now, the Japanese electronics company, NEC, has owned 4.7 percent of the stock capital. As part of the IBM transaction, the state will lower its interest to 70 percent. Bull is listed on the stock exchange, but according to Lorentz it plans to be more active there in the future. There is no representative of NEC on Bull's board of directors. IBM will not be given a seat or vote either, the president stressed.

Lorentz appeared content with the decision for IBM; there had also been negotiations with Hewlett-Packard. The future of the computer industry lies in this type of strategic alliance, he said. Customers want a full range of products, and a single manufacturer can no longer offer that today, he said. In his view, an IBM-Bull interlocking investment would have been ideal. "But that would have been a little too expensive for us," he said.

Initially, Bull negotiated with European companies, including Siemens and Olivetti, concerning cooperation in the area of microprocessors. However, these negotiations did not yield any concrete results. Then, talks with Hewlett-Packard, with whom the company has been working for some time, were initiated last year. Subsequently, parallel negotiations with IBM were launched. "IBM understood as well that one can no longer make everything oneself, as its cooperative agreements with Apple, Motorola, and Siemens

show. Somehow, IBM has become a completely normal company," Lorentz said literally. Strategic alliances are the only possibility for surviving in worldwide competition against Japanese suppliers, he said.

"In the future, we will be concentrating on the technology where we rank among the best. Everything else we will get from our partners," Lorentz said. He indicated that the greater financial possibilities in developing components were a strong selling point in accepting IBM's bid. On the whole, IBM was more interesting, he said. IBM's sales level in France is twice as high as that of Bull domestically.

Only 10 years ago, IBM wanted to dominate all aspects of the industry, Lorentz said. Some time ago, however, this approach changed. IBM knows today that even the world market leader needs alliances. In Lorentz's view, there will be no global cooperation between IBM and Japanese suppliers. An important difference between American and Japanese computer manufacturers, he said, is that the Americans are under quarterly-results pressure, while the Japanese think in 10-year time frames.

The agreement between IBM and Bull basically covers five areas. IBM makes Power RISC architecture, including system software for application compatibility, available to Bull. Bull contributes its own know-how in multiprocessor technologies to the overall further development of RISC architecture. Zenith Data Systems, Bull's microcomputer company, will supply portable PCs for inclusion in the IBM product line. Both partners want to expand this cooperation in the development and production of future laptops and notebook computers. Bull will supply IBM with 1.5 million PCs a year.

As founding members of the OSF [Open Software Foundation], Bull and IBM will make OSF developments available to their respective customers as quickly as possible. In addition, the partners will exchange licenses for selected communication and network functions from the OSI and SNA area. The partners will conclude production and associated licensing agreements, which are projected to reach a volume of several hundreds of millions of dollars a year. Ultimately, the financial investment in Bull by the Americans supposedly underscores the long-term character of this strategic connection.

Lorentz said that a number of developments are responsible for Bull's high losses—in 1990 there was a deficit of 6.7 billion French francs [Fr], while the net loss in 1991 should be around Fr3 billion. The main reason, besides the clear drop in demand—only niche producers are still doing well—is the bitter price war over PCs, he said. The latest generation of machines is capable of functions that only classical computers could perform in the past, he said. In addition, there is the general cyclical decline. Bull should be back in the black by the second half of 1992, the president said.

Lorentz, who estimates Bull's export share at 66 percent and its market share in Germany at around 3 percent, also said that companies are now intensifying their quest for better margins in the field of technical services as well. In addition, cost-reduction programs are under way, and research efforts

are being concentrated and tightened up. With the completion of the European internal market, Japanese and American competitors will be thronging to Europe even more than before. However, IBM has been considered a European manufacturer for some time now. In 1991, the sale of hardware worldwide declined for the first time, the president of the French state-controlled company emphasized.

Bull-IBM Alliance Discussed

Alliance Defended, Others Detailed

92WS0350A Paris LE MONDE in French

29 Jan 92 pp 1, 18

[Article by Thierry Brehier: "Reorganization of French Electronics Industry: Mrs. Edith Cresson Chooses IBM-Bull Alliance"; first paragraph is LE MONDE introduction]

[Text] Mrs. Edith Cresson announced on Tuesday, 28 January that IBM will be acquiring a stake in Bull's capital structure in exchange for a commitment to furnish Bull a leading-edge technology and purchase French products. Prime Minister Cresson stated that the choice had been "difficult." Mrs. Cresson stated that she had seen to it that "the independence of our computer industry" would not be compromised. She also stated that other agreements had been signed with Apple and Hewlett-Packard.

"Big Blue" has won. Bull has chosen IBM as its partner. The decision was Prime Minister Edith Cresson's, acting for the government as the majority shareholder of the French firm. After having met with the president of the republic and obtained his agreement prior to the meeting of the Council of Ministers on Monday, 27 January—and following the return of her special adviser, Mr. Abel Farnoux, from a whirlwind trip to the United States where he met with the presidents of IBM, Hewlett-Packard (the other partnership candidate), and Apple, the industry's young maverick—Mrs. Edith Cresson announced the decision on Tuesday, 28 January.

As she released this statement, Mrs. Cresson was accompanied by the heads of the principal French firms with an interest in what is actually a number of agreements linking the French computer and electronics firms with the top American firms in the sector. The days when the French firm's management was obsessed with the idea of keeping Bull from falling into the clutches of international computer giant IBM are now a thing of the past. Today, the Japanese threat appears more serious than American domination, especially now that IBM has lost some of its haughtiness and, in any case, is no longer in a position to dream of a quasi-worldwide monopoly (LE MONDE 21 Jan). The choice, however, was by no means easy.

Bull needed a partner for a position in Unix-based RISC [Reduced Instruction Set Computing] technology, which holds the future of the computer industry. The company therefore negotiated with the two American companies that were capable of providing Bull with the indispensable technical support (LE MONDE 15 January). With the proposals of both in hand, Bull's principal shareholder—that is, the state, hence the government—girded for combat.

In Mrs. Cresson's view, this agreement would have to be but another component of her plan for rescuing leading-edge French industries, the first component having been the merger of CEA-Industrie and Thomson's civil-sector activities (LE MONDE 19 December). The Matignon [prime minister's official residence] took the position that the chosen American firm—which would be gaining Bull's potential support for the sale of its RISC system—must not only support Bull's other activities, but must also participate in the development of SGS-Thomson, the Franco-Italian manufacturer of semiconductors.

From the prime minister's viewpoint, insofar as concerns the RISC technology alone, Hewlett-Packard had the incontestable advantage over IBM. But as for the rest of it, IBM, as the world's number one in computers, offered greater possibilities. And above all, after Bull's having been associated in the past with companies such as General Electric, then with Honeywell, both of which subsequently met with difficulties, the prime minister preferred to place her bet on prudence, that is, on a company that, whatever turn the computer market might take, would still remain one of the sector's big ones.

This did not mean that Mrs. Cresson had any intention of eschewing agreements with other companies. Thus, after the heads of the French firms had negotiated with their American counterparts, what Mr. Farnoux went to the United States to wrap up, accompanied by the Industry Ministry's general director and a representative of the Treasury, and what Mrs. Cresson presented Tuesday morning, was an entire package. Here are its essential contents:

IBM-Bull Agreement: IBM will provide Bull with the RISC-Unix technology and immediately with products of the RISC family. IBM undertakes to order from Bull 150,000 portable computers a year for a period of four years. IBM will subcontract \$10 million of work a year to Bull's Angers plant. It will acquire approximately 6 percent of Bull by way of a joint augmentation of Bull's capital that will cost IBM between \$100 and \$150 million. This will not bar the state from also participating in the indispensable recapitalization of Bull. And—the prime minister having insisted adamantly on this point—Bull's engineers will have very open access to and within IBM's laboratories and plants working in the domain in which the two firms are associated as mutual partners.

IBM-SGS-Thomson: IBM, which is already a very large client of SGS-Thomson, will double its orders on SGS-Thomson within the space of three or four years; that is, it will effect purchases of from \$50 to \$100 million [this passage as published]. To render this feasible, the American company, every three months, shall notify its European partner of its needs. IBM will also purchase the transputer microprocessor developed by SGS-Thomson. The two firms will institute a research and development partnership covering the entire field of microelectronics.

Apple-Bull: Apple has developed an advanced computer design center at Austin. Apple has signed an agreement with IBM enabling the latter to share in the fruits of this research. Bull will join this club.

Apple-France Telecom: Apple will work together with France Telecom, the CNET [(French) National Telecommunications Research Center] laboratories, and TCE [(Thomson Consumer Electronics) a subsidiary of Thomson], on the development of multimedia systems, and in particular on the new generation of Minitel.

Apple-SGS-Thomson: Apple currently purchases very little from the Franco-Italian firm, but little by little, through a partnership arrangement between the two firms, Apple will increase its orders on SGS-Thomson.

Hewlett-Packard-SGS-Thomson: Although IBM was chosen over Hewlett-Packard for the agreement with Bull, Mr. Farnoux states that he has persuaded Hewlett-Packard to work together with SGS-Thomson on components outside of the RISC family.

French Government's Strategy Discussed

92WS0350B Paris LE MONDE in French 29 Jan 92 p 18

[Article by Caroline Monnot: "Government's Electronics Strategy: Choice of Security"]

[Text] The bidding has ended. The American firm IBM, the world's largest computer manufacturer, will be the privileged partner of the French public sector's Bull, which ranks 12th worldwide in this industry. Bull's board of directors was convened on the same day that the government announced the result on Tuesday, 28 January.

The agreement's strictly computer package had been wrapped up a good week before. The final discussions centered on the components package. The Prime Ministry, which had made its support of the microelectronics industry the linchpin of its industrial policy (LE MONDE 22 January), went all out in the final days of the negotiations to obtain from the two competitors a commitment favorable to SGS-Thomson, the Franco-Italian manufacturer of chips, which are distributed by SGS-Thomson. The Elysee, persuaded by Mr. Francis Lorentz's arguments, decided in favor of IBM.

For the record, it is now known that Bull's management had planned to break the news itself several days ago. A board meeting had even been convoked for Friday, 24 January, and the alliance with IBM was to have been the subject of a television press conference to be held that same day. The initiative was stopped dead in its tracks by the Prime Ministry. Aside from the fact that the government had no intention of being upstaged, last-minute negotiations had been scheduled for the weekend with Hewlett-Packard by Mr. Abel Farnoux, special adviser to Mrs. Cresson at the Matignon [prime minister's official residence], on a whirlwind trip to and from Palo Alto, California.

The stakes: A guaranteed future for Bull, and the rescue of SGS-Thomson from virtual bankruptcy. And the game plan followed was a double-ended strategy encompassing a vast palette of proposals available to each of the two suitors for the hand of the French group in marriage. The complex framework of the negotiations also made available a wide-ranging latitude on the government side, within which the

partisans of each of the two competing solutions could maneuver and press for adoption of theirs, and add grist to the record of events.

Some 10 days ago "Big Blue," for the first time in its history, announced results in the red. Hewlett-Packard, for its part, basking in the success of its workstations, a market segment whose growth is currently among the most solid, with relatively comfortable margins, indulged in the luxury, so rare these days in the computer sector, of posting a rise in profits. Despite financial results less striking than those of Hewlett-Packard, however, IBM, backed by the Bull management's expressed preference for it, was finally chosen.

Industrial Peace of Mind

The choice evokes three comments. First, the French public-sector group is forging an alliance not as much with a manufacturer as with a family (the IBM-Apple-Motorola clan) which, like its four other rivals (the Hewlett, Sun, DEC, and MIPS families), is striving to gain the ascendancy in the technology of Unix-based RISC [Reduced Instruction Set Computing] microprocessor machines (LE MONDE 15 January). By deliberately joining a clan, Bull gives the members of that clan a decided advantage in the race to set standards. The government agencies all understood sufficiently early on into the proceedings—and this is to the credit of the Matignon—that the alliance held strategic interest for both IBM and Hewlett-Packard.

Despite its poor financial performance—the Bull group was compelled to report 2.8 billion francs[Fr] in losses for 1991, following the Fr6.8 billion loss posted the preceding year—as well as 1991 sales shortfalls, Bull was able to enter negotiations from a position of strength. This was not the case last summer, when it negotiated and signed an agreement with Japan's NEC. Nor was Brussels able to negotiate from strength during its talks with Tokyo on the opening of the European market to Japanese cars.

Second, in opting for IBM, Bull considered first of all the question of commercial security. The number of "Big Blue" machines installed worldwide is far larger than that of Hewlett-Packard machines. Next came the question of industrial peace of mind. In delegating the production of microcomputers to Bull, the American giant provides the Angers plant with a workload amounting to several tens of thousands of work hours, lacking which it faced the probability of a thorny social problem. The security, of course, is far from total. And Bull, with a revenue one-sixth the size of its partner's, is going to be hard put to make its voice heard within its adopted family.

And third, the problem of recapitalizing SGS-Thomson has still not been resolved. IBM, the Franco-Italian chip manufacturer's number one client, has promised to double the number of chips it buys from the firm. But it has refused, for the time being, to acquire a stake in the firm's capital. Apple is also expected to purchase its needs from SGS-Thomson. And as an indirect result, the partnership with Germany's Siemens could be revived. IBM and Siemens have been working together since summer on the development of 64-megabyte memories.

For the moment, Bull's industrial problem can be said to be resolved. What it now needs is a new margin for financial maneuver. IBM is to enter the financial structure of the Bull Machines Company to the extent of 5.7 percent. IBM's share will be larger than that of NEC, but smaller than that which some at the Matignon, contrary to Mr. Francis Lorentz's views, considered desirable. The figure of 9.9 percent was advanced on several occasions. Bull's financial position will still depend in large part on Brussels, which is examining the Fr2 billion in capital grants the French Government has planned for 1991 and 1992. Talks with the European Commission have intensified. Paris appears prepared to offer, in exchange for a retraction of the EC's veto of the direct capital grant for 1992, a commitment to make it the last capital grant altogether.

Volvo Merger With Procordia Planned

92WS0357C Stockholm NY TEKNIK in Swedish
30 Jan 92 p 4

[Article by Jan Melin: "Procordia Funds Will Back Volvo Research"]

[Text] Money of its own instead of having to borrow funds to develop new car models.

That is an important ingredient in the planned merger of Volvo and Procordia.

Most of Volvo's profits during the 1980's went into developing new car models.

"Even when we do not have any profit we have to invest a lot of money," said Hans Renstrom of Volvo's information division. "Then we have to borrow the money, which is not advantageous."

A merger of Volvo and Procordia will make the new company less sensitive to market fluctuations. Bad times for the car industry can be offset by better times for the food products industry which is now Procordia's main interest.

Framatome To Enter German Automotive Market

92WS0366C Paris L'USINE NOUVELLE in French
6 Feb 92 p 43

[Article by Xavier Debontride: "Framatome Plugs In Its Connectors In Germany"; first paragraph is L'USINE NOUVELLE introduction]

[Text] By teaming up with a German wiring specialist, Framatome Connectors International is trying to get in the door with Germany's car makers.

Framatome Connectors International (FCI) has pulled off a double coup in Germany. First, it took over the Schmid connection company last December. Now its Dusseldorf subsidiary, which had sales of 58 million French francs [Fr] in 1991, has just wrapped up a sales and technical collaboration agreement with the Leonische Drahtwerke (Leoni) group.

The Nuremburg manufacturer designs, makes, and markets electrical beams for Porsche, Mercedes Benz, Audi, and Ford. It has sales of Fr1.7 billion and 4,000 employees. FCI, which has a turnover of Fr3.5 billion and 7,000 employees

working for Souriau, Burndy, Jupiter, and Connectral, has its eye on Leoni's auto-industry references. It has been trying for several months to get a foothold in the German automobile market. "This makes us more credible partners for those manufacturers," hints one of FCI's managers.

Initially, FCI's acquisition of Schmid (Fr45 million in sales and 80 employees) gave FCI Deutschland, which started as a simple assembly and sales subsidiary, the manufacturing facilities it lacked. Most important, however, teaming up with Leoni provides the French company with a local ambassador that has a firm foothold in the auto companies. The German company will promote FCI's new Sygma technology, which is already employed by Renault, in the Rhineland.

The two groups do not plan to acquire stock in each other, and say that their only interest is in developing integrated electrical wiring systems together.

French Electronic Components Firms Unite

92WS0366D Paris L'USINE NOUVELLE in French
6 Feb 92 p 47

[Article by Alain-Gabriel Verdevoye: "Socofix, Or How to Bring Together Companies Without Swallowing Them Up"; first paragraph is L'USINE NOUVELLE introduction]

[Text] Socofix's challenge—combining small companies and multiplying economies of scale—is not a simple one when the companies are scattered all over France.

Bringing together small businesses and stimulating the synergies between them without diluting each one's identity is a formidable challenge. Yet that is what Gilles Benhamou, a 38-year-old graduate of the Polytechnical School and a former high-ranking official in the Ministry of Industry, is gambling on doing. "We try to bring together electronic component manufacturers that are making profits in niches largely overlooked by the competition and ignored by the large groups. And, if possible, manufacturers that are leaders in their industries," explains the CEO of the Socofix group, which was formed in 1989.

The holding company of 600 people tripled its sales in one year, making 300 million French francs [Fr] in 1991. It expects net earnings of Fr25 million, and already has eight companies under its wing. Its latest acquisitions include the telephone connector specialist Forgos last July (Fr15 million in sales), and the Savoy firm AEMF (Fr50 million) last October. AEMF is a leader in solenoid valves for diesel engines.

Gilles Benhamou is negotiating to take over foreign business interests with the backing of financial partners, particularly regional development companies, which invested in Socofix in 1989. Socofix now supplies the vast majority of automobile condensers used in France, nearly 100 percent of the

diesel engine solenoid valves, and 25 percent of the telephone connectors. Socofix's CEO wants the holding's different firms to retain their autonomy and small-company structure, while substantially cutting their administrative, sales, and research and development costs through a pooling of resources. "We reduce the overhead of the companies we acquire by 20 to 40 percent initially," stresses Gilles Benhamou.

Going After Overhead Costs

A few years ago the oldest company in the group, Facon (radio antennas and semiconductors), spent Fr60,000 in monthly salaries for its accounting department alone. Today the holding company spends barely twice that for sales six times as great. Similar savings have been made in sales departments.

The strategy is simple, but implementing it sometimes leads to paradoxical situations. To achieve economies of scale, companies were grouped together at three industrial sites: Cluzes (Haute-Savoie), Rozet (Aisne), and Alencon (Orne). But that is just the trouble. It is hazardous to try to maintain the specific personality of each small company while making most of them move. Interswitch, which manufactured push-buttons in the Paris area, was forced to move its production to Aisne. Forgos had to do the same, in Normandy.

The migrations are not painless. Only two of Forgos's 30 employees agreed to follow their company. Gilles Benhamou is aware of the contradiction. Indeed, he wants to create new identities around the three geographical hubs. Such a cultural shift will be vital if Socofix wants to hang on to the know-how of its companies.

CEA, Saint-Gobain Sign Monocrystal R&D Agreement

92WS0376C Paris AFP SCIENCES in French
13 Feb 92 p 17

[Article: "Agreement Between CEA, Saint-Gobain To Study and Develop Monocrystal Materials"]

[Text] Paris—An accord providing for the development and manufacture of scintillating and laser monocrystals was signed on 12 February by the Atomic Energy Commission (CEA) and the Saint-Gobain group, according to a CEA communique.

The difficult-to-obtain crystalline substances (quartz, silicas) are used in the fabrication of numerous microelectronic and optical components and in detection of nuclear radiation (scintillating materials emit light when they receive radiation).

The accord, ratified by the general administrator of CEA, Mr. Philippe Rouvillois, and the president-general manager of Saint-Gobain, Mr. Jean-Louis Beffa, involves cooperation between the industrial ceramics division of Saint-Gobain and the optronics division of CEA's LETI [Electronics, Technology and Industrialization Laboratory]. The research will be conducted at the LETI facilities at the CEA research center in Grenoble.

Dassault, BAE May Build Future Military Planes
92WS0397C Paris AFP SCIENCES in French 20 Feb 92
pp 19, 20

[Article entitled: "Dassault Wants to Study the Military Planes of the 21st Century with British Aerospace"]

[Text] Paris—Dassault and British Aerospace (BAE) are discussing a joint research agreement to study the military planes that will replace turn-of-the-century combat craft after 2020. Dassault Aviation's management announced the talks on 18 February in Paris.

Two Dassault Aviation vice-presidents Charles Edelstenne and Bruno Revellin-Falcoz said that Dassault and British Aerospace "have been actively discussing the matter for about two years, and the mayonnaise is beginning to set." Dassault and BAE are currently rivals over the Rafale and EFA [Eurofighter Aircraft] fighter planes. The two Dassault officials added that, "We will make joint proposals for shared research contracts to our two governments over the next few months."

Mr. Serge Dassault and his two vice-presidents declined to say whether the joint studies would focus first on future combat planes, training planes, or patrol planes. A cooperative venture on business planes may also be included in the plan.

Messrs Edelstenne and Revellin-Falcoz are discussing the possibilities with BAE officials Dick Evans and Sid Gillibrand, assisted by a working group of 20 engineers from the two companies. "We have the same ideas about future planes and are already prepared to travel a long way together," stressed Dassault's managers. "But the size of the joint teams and the specific applications we work on will depend on how much scope our governments want to give to our collaboration."

The Franco-British joint venture, Dassault stressed, will be open to other European partners. It is comparable in every way to Aerospatiale's and BAE's current joint study on a civil supersonic plane to replace the Concorde, said Mr. Edelstenne.

Dassault worked with BAE on the European combat plane Eurofighter until 1985. At that time France broke off with its British, German, Italian, and Spanish partners to design its own lighter and more versatile craft, the Rafale, and provide steady work for France's enginemaker SNECMA and radar manufacturer Thomson.

The EFA program is the most ambitious multinational weapons project ever undertaken in Europe. It bears a price tag of \$35 billion. But the program's health has been shaky since Germany, which originally planned to buy 250 EFAs, announced in January that it would make a purchasing decision during the year.

France's Merlin Gerin Increases Market Share
92WS0400A Paris L'USINE NOUVELLE in French
27 Feb 92 p 37

[Article by Dominique Commiot: "Merlin Gerin Sets Up Shop in Switzerland"; L'USINE NOUVELLE introduction

is "To increase its market share abroad, the Grenoble firm is acquiring foreign companies."

[Text] One of the world's leading companies in electrical equipment, Merlin Gerin, is pursuing its policy of acquisition in Switzerland. The takeover of foreign companies has played a substantial part in boosting the Schneider group subsidiary's sales sixfold in 10 years. Merlin Gerin had turnover of 20 billion French francs [Fr] in 1991.

Over the next few months, the Grenoble firm will be putting together a deal to acquire a majority stake in Feller Company, one of the big players in the Swiss market for terminal equipment (circuit breakers, switches, and so on).

Feller is located in Horgen, near Zurich, and employs 520 people. It has sales of Fr360 million, almost entirely from its domestic market.

Developing Specific Product Lines

Feller was seeking a partner that could ensure its own growth. Merlin Gerin's chief competitor in electrical equipment, the French firm Legrand, might just as easily have been attracted to the opportunity.

Penetrating the Swiss market, like many other markets, requires companies either to develop specific product lines that conform to the electrical standards of each country, or to take over a local manufacturer. The smaller the market, the harder it is to make a profit developing a new line.

Consequently, both Merlin Gerin and Legrand essentially follow a strategy of acquiring foreign companies to increase market share abroad. The most striking illustration is Schneider group's acquisition of Square D last year. It gave Merlin Gerin, which now holds 45 percent of the stock of Square D, the 30 percent of the American residential distribution market that Square D brought to Schneider.

The Grenoble firm's huge American venture has not cooled its ardor, though it is depressing its net earnings. Merlin Gerin's net income for 1991 should total about Fr750 million, before the negative impact of the Square D investment.

After acquiring an interest in Square D, Merlin Gerin purchased the monitoring and fire alarm business of Delta Production and Talco in France, and of Elkron in Italy, before taking over Feller in Switzerland.

CORPORATE STRATEGIES

Italian Government Plans to Aid Olivetti

92P60124 Duesseldorf HANDELSBLATT in German
7-8 Feb 92 p 20

[Text] The Italian state intends to give significant aid to the only large domestic producer of information technology, Ing. C. Olivetti & Co, Ivrea, to alleviate its difficulties.

This is seen from the negotiations under way among several state ministers, the trade unions, and the Olivetti management. The most important result seems to be that an agreement for a joint software group, rejected last fall, is taking shape again. At that time Olivetti demanded the majority of capital in the case of a merger of the software

activities of the state company Finsiel (IRI group) and Olivetti OIS. The state refused, since it feels that this activity is of strategic importance. Then Olivetti president Carlo De Benedetti announced that he would have to seek an alliance with foreign partners and began negotiations with the French group Cap Gemini.

Now De Benedetti is announcing a "pause for thought" for these talks, since Olivetti is obliged to consider the offer of the Italian state. According to De Benedetti, Olivetti has now twice rejected the approaches by IBM for cooperation and a minority share, since "the IBM proposal amounted to its getting a sales network on the cheap." The U.S. company was mainly concerned, as in the agreement with Bull, with getting another system for its "RISC platform," according to De Benedetti.

According to Olivetti management, the company lost 290 billion lire (392 million German marks [DM]) in 1991, which included the costs for 7,000 surplus personnel. The company earned DM82 million in 1990.

In the next few days the managements will decide whether and to what extent extraordinary expenditures for a reorganization, begun in 1991 and continuing this year, will be included in the losses for 1991. The company's turnover dropped by 5 percent in 1991 to 8,600 billion lire (DM 11.6 billion) and resulted in an almost balanced operating result.

Because of self-financing, the debt even decreased; in 1990 it was DM1 billion. At this stage in the negotiations, the Italian state is offering Olivetti considerable aid: of the 2,200 surplus personnel who are in Italy, 1,000 are to be taken into the northern Italian public administration. At the same time, Olivetti is to receive large public contracts. Moreover, Rome will probably offer the company considerable funds for research and technical renewal. Olivetti had requested DM2.8 billion for the years 1992-1994, but a new basis for refinancing must be created for 1993 and 1994.

Siemens Wants EC Financial Support for Chip Factory

92P60131 Duesseldorf *HANDELSBLATT* in German
19 Feb 92 p 17

[Text] Concerning the efforts of the EC Commission to bring Europe's three largest semiconductor manufacturers under one roof to achieve the dimensions of the Japanese chip producers, Siemens chairman Dr. Karlheinz Kaske made a counterproposal in a letter to EC Commissioner Pandolfi. For each new chip generation, starting with the 64 megabit memory chip, the EC should build a large factory. Only in this way can one eliminate the enormous cost disadvantages of European producers, according to Juergen Knorr, member of the Siemens board of directors and head of the semiconductor division. Thus far, EC Commissioner Pandolfi has only promised to examine Kaske's proposal in a favorable manner. In Knorr's view, the Europeans need to attain direct access to the next generations of memory, the 64 megabit DRAM, and the 256 megabit DRAM, as well as the subsequent gigabit domain. His ideal site for European production of the 64 megabit DRAM developed in partnership with IBM would be Regensburg or, because of subsidies

and the technical personnel there, Dresden. If, however, the EC does not support the construction of a chip factory, then the alternative, for reasons of cost, is to build a production site in Singapore, because there is already an offer on the table from that country that it would build a chip factory at its own expense which Siemens could operate, according to Knorr. In Knorr's view, however, a quick decision on the location of the 64 megabit production is not yet necessary, since the production of the 64 megabit chips will not go into full swing until 1995-96. Before that, a pilot production at the IBM facility in East Fishkill, New York could be used for the initial need. However, this will not be sufficient for either IBM, the world's largest user of chips, or for the business of the Siemens semiconductor division.

Whereas Siemens was still six months behind the Japanese in the 4 megabit DRAM chips, the German electronic company will come on the market at the same time as the Japanese in the case of the 16 megabit memory chips made at the IBM plant in Corbeil-Essones near Paris, and with the 64 megabit DRAM chips, according to Knorr. However, the investments in Corbeil-Essones requires a total of \$1 billion for production, thus DM800 million for each partner. For the production site of the next generation, namely the 64 megabit DRAM chip, Knorr estimates that the material investments will be \$1.8 billion and the research and development costs \$0.8 billion. Siemens can not and will not finance such high investments out of its own pocket, said Knorr in justification of the letter by his boss to the EC Commission asking for financial aid. Siemens intends to continue to expand in the semiconductor market through cooperation with large companies such as IBM. Of the 60 semiconductor manufacturers, eight are major players, each of which has a world market share of about 5 percent. There are also 27 medium-sized semiconductor companies, which includes European companies such as Siemens. In Knorr's opinion, these companies must attempt to maintain themselves by cooperating with other countries so as to be among the pacesetter companies. According to Knorr, there is hardly a semiconductor manufacturer who is currently operating profitably. This is also true for Siemens, whose semiconductor division is roughly one-fourth below the plan and below last year's level in terms of incoming orders and sales. The current staff of about 14,000 employees is to be reduced by well over 2,000 people. With this leaner staff, Knorr intends to achieve sales of DM3 billion in three or four years (it was DM2 billion in 1990 and 1991) and to reach the break-even point.

Siemens' 1991 Results, Future Plans Discussed

Profits, Future Tasks

92WS0291A Duesseldorf *HANDELSBLATT* in German
17-18 Jan 92 p 11

[Article: "Worsening of Operating Performance Because of Siemens Nixdorf Information Systems and Semiconductors; 'Siemens Bank' Saw to Handsome Profit"; figures in parentheses following stated results are those of the previous fiscal year]

[Text] Munich, Thursday, 16 Jan 92 (*HANDELSBLATT*)—Acting Chief Executive Officer Dr. Heinrich von Pierer,

who held the annual press conference in Munich in place of the unfortunate Siemens president, Dr. Karlheinz Kaske, reported on a varied trend in individual management areas of the Munich Siemens Group in fiscal year 1990-91 (30 September). To be more precise, Siemens had to digest in the current year considerable losses of its subsidiary Siemens Nixdorf Information Systems (SNI) to the tune of 781 million German marks [DM] and of its semiconductor division of probably an order of magnitude of DM500 million, as indicated by Financial Chief Dr. Karl-Hermann Baumann. All the same, the German electronics giant did not slip profit-wise.

If all the same there is on balance slightly improved performance in Siemens' worldwide financial statements, reflected in the earnings per share that rose to DM43 (42), then this is due above all to the doubling of the financial results to around DM2 billion of the so-called "Siemens Bank," which contributed the greater share to the operating result of DM3.42 (2.8) billion. The taxes on earnings that rose to DM1.63 (1.16) billion reflect the improved earnings position of the parent company Siemens AG [German Stock Corporation] and the higher transfer to reserves.

According to Baumann the performance of the management sector got 20 percent worse above all because of the Nixdorf result which came into play for the first time. However, the loss of the chronically in-deficit semiconductor sector also became still larger. Regionally, it is true, the loss of its U.S. subsidiary Siemens Corporation of New York decreased to DM216.5 (247.2) million. However, a loss of DM69.2 million appeared in addition for the first time for its American SNI subsidiary. Considerable losses were also reported by its Argentine and Brazilian subsidiaries. However, about three-fourths of its U.S. business is in the black.

In contrast to the year before, a negative investment result of 153.3 is reported (versus a positive of 118.6 the year before). Of the DM318.4 million in charges resulting from agreements to assume losses, about DM250 million are accounted for by the companies in the new federal lands. However, here it is not a question of operating losses but of purchased materials and services that are resulting in part from the employment of preferential treatment, Baumann explained. Orders to the tune of DM3.3 billion have already been brought in from the new federal lands and DM1.8 billion worth of sales entered. The DM2.2 billion worth of sales (new orders reached approximately the same level) of the Siemens companies acquired or founded in the new federal lands are not included in this figure. These are being consolidated for the first time in 1992. The contribution of the Eastern German business thereby reached 4 percent of new orders, that rose by 22 percent to DM82.17 billion worth, and 3 percent of sales, that expanded by 16 percent to DM73 billion worth, Pierer emphasized.

Sales increased by DM5.7 billion just through the consolidation of new companies—above all SNI, Duewag and Plessey—so that 9 percentage points of the 16 percent increase in sales are accounted for just by the inclusion of these new companies. In fact, the first quarter of the current fiscal year, 1991-92, began with a slight minus of DM20.1 billion for new orders. However, this is to be attributed to

the high basis of the same period of the year before, Pierer emphasized, who is expecting a 5 percent increase in orders of DM86 (82) billion for the new fiscal year.

Sales growth of a good 10 percent is in sight in the current year in the tail wind of a high backlog, so that the mark of DM80 billion should be easily exceeded. The volume of business grew by 6 percent to DM16.2 billion in the first quarter, where domestic business proved to be an engine of economic growth with an expansion of 9 percent, while foreign business rose by only 3 percent.

Financial Chief Baumann spoke of a normalization of the 1990-91 financial results, which were characterized in the year before by especially high securities write-offs of DM725 million. This year's securities write-offs dropped drastically to DM78 million. In fact, the still high liquidity of the "Siemens Bank" dropped further to DM18.6 (19.3) billion through major acquisitions, but net interest income improved to DM1.86 (1.65) billion. In addition, greater earnings were obtained by the sale of securities.

Siemens Vice President von Pierer is expecting an additional profit percentage of 2.5 percent for the current year too. In view of the expected reduction of the loss of EDP subsidiary SNI, however, the share of operating results in total earnings should increase more. Baumann is also assuming a slight reduction in liquidity for the current year, which should have an effect on net interest income.

In spending on fixed assets, von Pierer announced a slight increase in the current year. In the last fiscal year of 1990-91, in fact, total capital spending dropped to DM5.6 (7.1) billion, but spending on fixed assets increased to DM5 (4.4) billion and thereby exceeded the DM4.4 (4) billion worth of capital asset consumption.

Meanwhile Siemens has taken a 26 percent interest in the Austrian company SGP-Verkehrstechnik Ges.m.b.H. [SGP Traffic Engineering Limited Liability Company], that is transacting 2.4 billion schillings worth of sales with 2000 employees at its Vienna and Graz locations. This acquisition is part of Siemens' managing board's strategy of expanding further its activities in traffic engineering, emphasized Managing Board Member Hermann Franz. The involvement in the Czech Skoda firm also fits into this concept. On the other hand, no decision has yet been come to as to whether the Siemens Group will take an interest in its subsidiaries Osram and Sylvania.

Its presence in the Eastern European market will also be increased with its entry into the fields of power generation and traffic engineering at Skoda. It has just 1 percent of the world's business at present, but von Pierer considers it strongly capable of development with an improvement in Eastern Europe's financial position. In addition to further expansion of its U.S. business, Siemens is also aiming at expansion of its Far East business to an approximately 5 percent share of its total sales. In fiscal year 1989-90, its new orders in Japan still lay only just under the DM1 billion mark. This is seen as an optimistic indication of the expansion of its business in this difficult market.

Von Pierer named two main tasks for the current year: reduction of its semiconductor losses by a restructuring program in the form of a transfer of production capacities from Munich to Villach, whereupon around 1400 jobs will be cut in Munich. The second Herculean task concerns the further revamping of Siemens Nixdorf Information Systems. The group loss of DM781 million will in the end not be reduced appreciably by bringing together formerly independent units. An increase in share capital is not being considered, they say, but if all warrant holders use their stock warrants, then DM1.9 billion of capital resources will go to Siemens, which would equal a DM150 million increase in nominal capital.

Higher Number of Employees

92WS0291B Duesseldorf HANDELSBLATT in German
17-18 Jan 92 p 11

[Article: "Siemens Employees/Inclusion of New Subsidiaries; Number of Employees Has Risen by Eight Percent"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—At the end of fiscal year 1990-91 (30 September) Siemens employed 402,000 people worldwide, 8 percent more than in the year before. This increase was accounted for above all by the inclusion of new companies: 24,000 Nixdorf employees, 5,000 from Plessey and 2,000 each from Dueswig and Stromberg-Carlsson. Its number of employees will increase to 419,000 in the current year through the consolidation of the Eastern German companies.

However, for the further course of fiscal year 1991-92 Acting Chief Executive Officer Dr. Heinrich von Pierer announced a cut in the number of employees "for economic reasons and as part of the program for cutting losses in semiconductors and above all at Siemens Nixdorf." When payroll costs rose by 18 percent to DM31.8 billion last year, then about 75 percent of this additional expenditure of DM4.8 billion would be accounted for by the newly consolidated companies. At Siemens AG, 17 percent of payroll costs went to voluntary benefits like, for example, employee pension arrangements for retired employees and surviving dependents, but also for measures for training and further education, for health care and for the offering of employee shares at a special price.

The number of employees outside Germany rose by 11 percent to 159,000 last year, while it increased by 6 percent to 243,000 (230,000) in Germany. Siemens handed out DM690 million for training and further education in the year under review.

After the number of employees had increased by 35,000 in the early months of fiscal year 1990-91, in the later course of the year it dropped continuously by 6,000. This decrease affected locations outside Germany above all. In addition to Siemens Nixdorf Informations Systems AG, and in the semiconductors sector, the private communications systems, motive power engineering, sonics and installation equipment as well as the security equipment sectors reduced their number of employees. Last year Siemens filled 3,970 openings for trainees. At present a total of 12,210 young people are learning an industrial, commercial or technical job or are completing a traineeship at Siemens.

Bosch-Siemens' Results

92WS0291C Duesseldorf HANDELSBLATT in German
17-18 Jan 92 p 11

[Article: "Bosch-Siemens; Market Share Improved"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—Bosch-Siemens-Hausgeraete GmbH [Household Appliances Limited Liability Company] (BSHG) was able to strengthen its strong position in European markets because of its uninterrupted growth for years. Its world sales rose to over DM7 (6.5) billion in fiscal year 1991. Its stronger growth came again from the domestic market here. While "white goods" appliances [washing machines, refrigerators, freezers, dishwashers, etc.] as a whole scored a distinct plus, entertainment electronics fell slightly back after the world soccer championship games in 1990. The growth all told has probably been in the neighborhood of 8 percent. However, it reached about 10 percent in the domestic market.

With a market share of around one-third, BSHG clearly occupies the number one spot in the German market. In Europe it is in second place with 13 percent behind the Elektrolux Group and it occupies fifth place worldwide. The new federal lands have probably already gained a share of about 10 percent of the German household appliances market. Meanwhile the BSHG group is number one in the Western European market for electric ranges and ovens with a market share of 18 percent.

Research Activities

92WS0291D Duesseldorf HANDELSBLATT in German
17-18 Jan 92 p 11

[Article: "Siemens Research/Share of Public Funds Came to Just Under Three Percent; 47,000 Employees Busy in Laboratories"]

[Text] Munich, Thursday, 16 Jan 92 (HANDELSBLATT)—The Siemens Group wants to further strengthen its market position in as many areas as possible by increasing its research and development effort. Expenses for research and development increased to DM7.9 (7) billion because of the acquisition of Nixdorf and Plessey. Around 47,000 (43,000) employees in laboratories are creating the prerequisites for the market shares of the future.

Management units are furnishing about 90 percent of the R&D output, and central departments around 10 percent. Financing is taking place almost completely from self-generated earnings. The share of public funds came to just under 3 percent in 1990-91. Siemens is pursuing research and development in 23 countries. A good 12,000 (9000) employees are busy in laboratories outside Germany. This increase is due above all to acquisitions of firms having major development departments. Its largest foreign research and development centers are in the U.S. and in its neighboring European countries. Large teams are working on software development in Asia, Taiwan and India.

Siemens has further expanded its cooperation with the best universities in the world, it was reported at the presentation

of its annual financial statement figures. Berkeley, California, Berlin, Boston, Erlangen, Munich, Pittsburgh, Princeton, Vienna and Zurich are the focal points here. The research and development projects sponsored by Bonn and Brussels are to serve as a catalyst in information technology, research on energy and materials, and increasingly in environmental engineering.

Siemens will continue with determination the concentration, begun in the last few years, on basic research. Twenty-two core technologies are being worked on at present in five central technology laboratories. Siemens' managing board expects that these will be decisive for ensuring the future.

The memory business where, however, the demand for 4-MB DRAMs is still growing rather slowly, belongs to the most important core areas. Though the memory business is still characterized by the 1-MB DRAM, Siemens concluded a development cooperation agreement for 64-MB DRAMs with IBM and an agreement with the same partner for the joint manufacture of a 16-MB DRAM. Siemens expects, as early as in the summer of this year, the first chips from this manufacturing operation in the vicinity of Paris.

Siemens is supplying, as the only European manufacturer, by utilizing its memory technology, Video RAM modules for flicker-free television. Siemens wants to gain access to the Japanese market also with this picture-within-a-picture module.

Siemens Nixdorf Losses

92WS0291E Duesseldorf *HANDELSBLATT* in German
15 Jan 92 p 18

[Article: "Siemens Nixdorf/Extensive Cost-Cutting Program; The First Year Ended With a DM781-Million Loss"]

[Text] Munich, Tuesday, 14 Jan 92 (*HANDELSBLATT*)—The first annual report of Siemens Nixdorf Information Systems AG (SNI) in Munich showed a large loss, as Chief Executive Officer Dr. Hans-Dieter Wiedig had already announced. Subsequently, it was stated in the SNI Group as being DM781.4 (DM799.6 million the previous year) million after taxes and DM740 million before taxes. These results are characterized considerably by the restructuring expenses and costs of the merger, the managing board emphasizes. The dramatic drop in prices had an effect of around DM740 million for SNI in reporting year 1990-91.

Because of this the group's net loss for the year climbed to DM1.58 (0.796) billion. The operating result, at DM720 (795) million, was in the loss wedge. The first quarter of the fiscal year that has ended was affected especially strongly by the merger measures. However, SNI's operative capability was able to be improved starting in January, Chief Executive Officer Dr. Hans-Dieter Wiedig emphasized. This is reflected in the fact that more than DM7 billion worth of new orders and sales were obtained in the second half of the year. All told, 1990-91 sales dropped by 2 percent to DM12.13 billion. On the other hand, new orders, at DM13 billion, exceeded by 9 percent the previous year's level. SNI accordingly fell further into step in the market, the managing board emphasized. Sixty-two (61) percent of the

volume of business was domestic. Domestic orders also reached about the same share.

Investments Definitely Exceeded Writedowns

Wiedig is prepared for a restructuring loss at SNI in the current year also, but it will prove to be definitely smaller than in 1990-91. Prior restructuring costs are no longer to be digested in the current year. When the new organization becomes large in the meantime, costs should drop considerably, so that a considerable improvement in results is expected by the managing board on the basis of the sales reached in the second half of the fiscal year that has expired. However, in all there will be a loss again—if a smaller one—also at the end of the current fiscal year.

Above all the foreign subsidiaries in England, France and Spain, that all told imposed a loss of DM378 million in the reporting period, are also causing worry.

When the synergy potential is utilized fully by the end of 1992, cost reductions of an order of magnitude of around DM600 million should be gotten, Wiedig hopes. About half of this cost reduction is to be brought about by the cutting of about 3,000 jobs that has occurred already to some extent. The other half is to result from location streamlining, the integration of similar production processes and also by a reduction of production costs. Streamlining of the business in distribution and service as well as the rapid ironing-out of money-losing areas fall under this category.

Around DM1.7 billion will be spent on research and development again in 1991-92 too, as in the past year. The newly founded SNI invested DM809 million last year, so that the DM737 million in writedowns was definitely exceeded. The managing board's goal is to maintain also in 1991-92 the previous year's level reached in the second half of the year under review, so that annual sales of around DM14 billion will be achieved with a smaller workforce. The sales per employee will improve considerably in the current year because of this. SNI employed 51,643 people worldwide at the end of September 1991.

However, the managing board is assuming that the strong competition pressure will continue also in the current fiscal year, so that SNI will have to try hard to achieve the hoped-for growth and a simultaneous improvement in profitability. The proposed incorporation under German stock corporation law of the company into the Siemens Group will contribute to the improvement of its earnings position. SNI's managing board is expecting from this not only benefits from more suitable equity capitalization but also from better financing possibilities within the Siemens Group.

German Automobile Industry Looks to Future

Volkswagen Plans Investments

92MI0306A Bonn *DIE WELT* in German 15 Feb 92 p 10

[Text] The Volkswagen group has launched the largest investment program in the company's history, announcing that 51 billion German marks [DM] are to be invested worldwide in the automotive sector by 1996. According to finance director Dieter Ullsperger, a further DM31 billion

will be invested in the company's hire and leasing business, making a total figure of DM82 billion.

VW has also set a new sales record, with 3,126 million vehicles sold by the Wolfsburg company during the 1991 financial year, compared with 3,030 million during the previous year. This was a result of the boom created by the surge in demand from the new laender, which led to a 27.5 percent rise in sales, to 1,197 cars.

The group's profits remained at the previous year's level of DM1,086 billion, VW also reported. Increased expenditure on updating the product range would keep Volkswagen AG's profits below the previous year's figure of DM670 million.

Job Cutbacks Anticipated

92MI0306B Bonn DIE WELT in German 15 Feb 92 p 10

[Text] The German automobile industry is reacting to competition on the world market by increasing job cuts. The boards of most companies have already drawn up detailed plans regarding the sectors where the workforce must be reduced, and by how much, to enable them to compete on cost with other European and Japanese manufacturers. Speaking in Frankfurt, a specialist of the IG Metall labor union said, "relations with the company managements have really heated up now."

Union representative Wilhelm Hemer, a member of VW's supervisory board, accepts the need to reduce jobs in the face of Japanese competitors' far lower production costs; as Winfried Grzenia of the Automobile Industry Federation (VDA) understands, wage costs here are a third higher than in Japan, while Germany is at a 50 percent wage cost disadvantage compared with Spanish factories, and over 60 percent compared with British and French firms. Cost reduction was therefore becoming urgent for German car manufacturers, who had become somewhat spoiled by their record sales since the political change in Eastern Germany but who now faced an uncertain economic future.

VDA President Erika Emmerich feels there is a pool of labor to which "thought must be given." Whereas Germany's EC partners had cut at least 410,000 jobs in the period since 1980, an additional 79,000 jobs had been created in Germany. The result was that the German automobile industry had reached a record 787,000 by the middle of 1991, although over 10,000 jobs had been cut since then, according to the VDA. It is difficult to forecast the scale of the impending cuts, as so much depends on the economic situation, fluctuations in overseas market shares, and wage settlements.

Some companies have made specific announcements in line with the VDA's pointers; with Mercedes Benz, for example, reducing this year's output to meet the anticipated downturn in the car market; a reduction in its present global workforce of 238,000 is considered "unavoidable," and the possibility of redundancies is not ruled out, depending on how the market develops. BMW has taken advantage of the surprise caused by these announcements to outline its own plan to cut around 3,000 of its 74,200 jobs by the end of 1992.

Adam Opel AG at Ruesselsheim also plans to reduce its 56,600-strong workforce by natural wastage by the end of the year. Following its reduction of its German workforce by 3,000 during 1991, Volkswagen, Germany's largest automobile manufacturer, is not planning any further job cuts this year, though the board is discussing a reduction in its global workforce of 266,000 by 10,000. Ford's action in cutting 200 to 300 nonproduction jobs at its Cologne plant in recent years continues in the form of not filling vacancies during 1992.

Employee representatives on supervisory boards obviously accept the need for concessions in the face of international competition. IG Metall's Wilhelm Hemer admits that he and his colleagues on supervisory boards have so far agreed to a number of plans involving workforce reductions.

Dassault Aviation 1991 Figures Show Decreased Profits

92WS0326C Paris AFP SCIENCES in French
23 Jan 92 p 17

[Article: "Dassault Aviation: 1991 Revenue Down 17 Percent"]

[Text] Paris—Dassault Aviation's profits dropped approximately 17 percent in 1991, to around 14.3 billion francs[Fr], according to preliminary estimates released by the aircraft manufacturer's management on 16 January.

The receipt of new orders during the same period also dropped, down 25 percent, to approximately Fr12 billion. This decrease in orders was felt in both the civilian and military sectors, Dassault pointed out. Its 1991 net result is not yet known, but "it is expected to be on the positive side." Dassault's 1990 consolidated net profit was Fr374.2 million. That of the parent company was Fr218.2 million.

Asked about a possible restructuring of the aircraft industry in France, Dassault's management pointed out that Dassault has always favored "a medium-sized company with good technological performances, over a chaotic conglomeration."

On the other hand, Mr. Serge Dassault, president of Dassault Aviation, recently proposed "an enhancing of the synergy that exists between Dassault Electronics and Thomson-BEA." The latter is Thomson-CSF's aircraft equipment branch. This proposal aims at forming two companies: One specializing in radars and headed by Thomson, and the other specializing in ECM [Electronic Counter Measures], in which Dassault Electronics would be the majority shareholder. These proposals, Dassault points out, were conveyed to Thomson-CSF's CEO and to the Defense Ministry, but, to date, have elicited no response.

France Telecom Reports 1991 Profit Increase

92WS0328A Paris AFP SCIENCES in French
23 Jan 92 p 19

[Article entitled: "France Telecom's 1991 Profit Estimated at 1.3 Billion Francs"]

[Text] Paris—As predicted, France Telecom should make a profit of 1.3 billion French francs [Fr] in 1991, on sales of

Fr1.15 billion. The figures were given by the company's CEO Marcel Roulet on 17 January. In 1990, France Telecom earned Fr200 million after state deductions.

Sales are up nearly 7 percent. This is especially due to the strong growth in corporate communications, which saw a 50 percent increase in faxes and a 12 percent increase in data transmission. Computer communications and radio telephony also grew sharply, up 20 percent and 26 percent respectively. The group is predicting that its business will grow at the same rate in 1992. France Telecom's debt, which comes to about Fr120 billion, is nearly stable.

The number of installed telephone lines grew by one million and now exceeds 29 million. The rate of network computerization is climbing steadily: 86 percent of the long-distance telephone circuits have gone digital. Moreover, the company's radio-telephone service Radiocom 2000 had 290,000 subscribers at the end of 1991 and covered 93 percent of the territory. The various radio paging services—Alphapage, Eurosignal, and Operator—are growing and boast a total of 278,000 subscribers, including 130,000 for Alphapage.

France Telecom has installed nearly four million cable connectors. It has launched the cable TV decoder Visiopass, which is based on the temporary European standard for high-definition television D2-MAC. Abroad, the public carrier has pursued its policy of investment, notably by acquiring the British company Transpac Network Services in the data-transmission field. France Telecom has teamed up with Ameritech to build and operate Poland's radio-telephone system. Finally, it has also signed an agreement with the company U.S. West to expand the Minitel.

Peugeot CEO Announces Automation Policy Change

92WS0328B Paris *ROBOTS* in French 30 Jan 92 p 2

[Article entitled: "Peugeot Citroen Corp. Simplifies Its Production Lines"]

[Text] Jacques Calvet, the president of Peugeot Citroen Corp., has decided to rethink his investment strategy by putting the brakes on automation. The manufacturer considers all-out robotization to be a thing of the past. Mr. Calvet's trip to Japan last October sealed a conviction that he had been nursing for months: Peugeot so sacrificed simplicity with its oversophisticated production lines that it diminished the profitability of its investments. His first concrete step was to halt interior revamping of the Sochaux paint shop that was under construction, in order to do another study. That act is the harbinger of others. The divergent assessments of Michelin and Peugeot can be explained by the differences in their products. Full robotization works better for a long-run product with a short production cycle, such as a tire, than for something as complex as an automobile. Beyond such considerations, however, an entire approach to competitiveness at stake, with substantial social consequences.

"Despite our efforts, we have not progressed. Not for lack of hard work, but because our thinking was not consistent with our actions." This little remark from Jacques Calvet's

[holiday] wishes to his personnel, which were printed in the company's in-house magazine, announces the president's shift in investment strategy. After multiplying by 10 the number of robots operating in Peugeot and Citroen factories over the last 10 years—there are now 2,000 compared to 200 in 1982—the group has decreed a time out. Peugeot Corporation's management does not expect equipment to change much over the next few years. Only tasks that are deemed hazardous to humans or that could boost quality will continue to be automated. Management mulled over the decision, which is meant to create a sparer production tool, free of the snags caused by oversophistication, all last year. At stake is the ability to curtail investment costs without cutting into plans to replace equipment. The policy will trim the investment budget of Peugeot's automobiles branch by 1 billion French francs [Fr] this year, lowering it from Fr14 billion to Fr13 billion. The trend will continue into 1992 and beyond.

Modernization of Peugeot's Sochaux site began in 1983 and has already cost the company Fr7 billion. It was one of the very first plants to test out the new strategy. Although Peugeot's managers could not touch the new body-assembly and lacquer shops, which are already finished, they did halt interior revamping of the foundations building, where the first coats of paint are applied to the bodies. This waste hunt is just one element in the race for productivity that Jacques Calvet has gotten underway. In early September he announced that the company would restructure the respective research and methods management departments of Peugeot and Citroen. The goal is to reduce the time needed to bring out a model, which averages five years in France compared to three years in Japan.

ABB To Restructure

92WS0333C Paris *L'USINE NOUVELLE* in French
23 Jan 92 p 16

[Article by Marc Nexon: "Asea Brown Boveri Taking Hold of Itself To Safeguard Its Positions"; first paragraph is *L'USINE NOUVELLE* introduction]

[Text] Divestment and job cutbacks are on the immediate agenda. Transport and energy production are still top performers. The other divisions are being closely watched. And the Swiss-Swedish group nurtures ambitions in France and Great Britain, as well as in Eastern Europe and Asia.

The Swiss-Swedish electrical giant has embarked on a course of rehabilitative therapy. Despite its explosive growth over the past four years, Asea Brown Boveri [ABB] is going to have to accustom itself again to navigating in rough waters. The firm's accounts for 1991 have sounded the alert. This March, for the first time in its history, ABB may have to announce zero growth in profits. More disturbing is the likelihood that, this year, its revenue (146 billion francs[Fr]) will shrink. This is all that was needed by Percy Barnevik, the firm's fiery head, to restore order in his big house, which employs 215,000 people and owns or controls 1,300 companies.

On the menu are drastic economies, with a speeding up of divestments, and a cutting back of jobs. On both fronts, the initial measures have already been implemented. A few

weeks ago, ABB ceded its Swiss thyatron inverter manufacturing plant to the U.S.'s General Signal Company. Prior to this, the group decided to divest itself of its Georgia Kaolin American activity, its Goerz company in Austria, and its stake in Germany's BBC York company. Taken together, these activities were bringing Fr6 billion in revenue.

The reduction in staff is also proceeding at a lively pace. Approximately 12,000 persons left the firm last year, at the rate of 1,000 per month, and, according to the U.S.-based Goldman Sachs research firm, projections call for some 20,000 departures this year. In all, a blood-letting that is expected to improve the group's overall productivity by 5 percent.

Percy Barnevik had a reputation as the champion streamliner of company headquarters staffs, having slashed those of all the group's subsidiaries, including cutbacks from 100 to 600 employees in the United States, from 100 to some 1,600 in Germany, and from 25 to 880 persons in Finland. But this time, the scalpel is poised over the productive structure, with lights centered on Norway, Finland, and Germany, where markets are shrinking, particularly in the energy distribution sector (medium- and low-voltage equipment).

1992-1993, a Pause in Restructurings

In Norway and Finland, the group's plants will see their staffs cut by around 10 percent. Enough to blunt the image of ABB as insatiable conqueror and devourer that, since its creation in 1987, has become proprietor of some 60 enterprises!

The sudden applying of the brake to external growth two years ago, with a budget cutback in this rubric from 16.5 billion to 3.7 billion [currency not specified], inaugurated as of then the firm's era of streamlinings and restructurings. Percy Barnevik had forewarned that 1992 and 1993 would mark the pause. The stakes are clear-cut: The safeguarding of the firm's prestigious positions in a substantial number of specialized fields.

Indeed, few groups can pride themselves on being, at one and the same time, world leader in transmission of electrical energy, and robotics; the world's number two in the production and distribution of energy, and transportation; and number three in industrial process controls.

But the other side of the coin is that 60 percent of these activities are proving to be highly sensitive to the vagaries of economic trends. "During the 1992 operating year, all the group's divisions will experience a drop in profits, except for transports and energy production": This is the prediction of an analyst of the Enskilda Group.

Message received: The retaking of control over 4,500 ABB profit centers has begun. Fortunately, two activities are still breezing along with the wind in their sails. Transports, to whose entire line of products (high-speed trains, locomotives, signaling systems,...) ABB is devoting substantial research and development outlays (10 percent of revenue), and energy production, which is being powered by the boom in the gas turbines market.

This major in-house shake-up is not preventing ABB from keeping a watchful eye on four geographic zones in which it must per force expand: Asia (currently only 15 percent of revenue), and Eastern Europe, where it has already acquired 25 companies; and France and Great Britain, which, beyond the shadow of a doubt, loom large among Percy Barnevik's forthcoming preys.

Interview With Svetlik

92WS0348A Duesseldorf *HANDELSBLATT* in German
17 Feb 92 p 13

[Article by Josef Hess: "There is Nothing Indecent About Minus Rounds"]

[Text] *HANDELSBLATT*, 15-16 February 1992—The automobile industry throughout the world faces a "merciless" elimination competition, especially at the hands of the Japanese. The situation is aggravated by the fact that the Far Eastern competitors need not adhere to any voluntary restraint in deliveries from their branches (transplants) in Europe and the United States. The production- and cost-effectiveness as well as the shorter developmental and product cycles of the Japanese (in a word, lean production) call for adaptability of strategic and operative buying in the procurement market. This has worldwide consequences, not just for the automobile producers, but for their suppliers as well, Werner Svetlik, who is responsible for procurement on the Volkswagen proprietary board, explained in an interview with *HANDELSBLATT*.

Svetlik is responsible for a VW procurement volume of about 23 billion German marks [DM], or 48 percent of the DM47 billion turnover proceeds. Furthermore, his department exerts influence on about 80 percent (about DM30 billion) of the DM37 billion procurement volume of the VW Company in Europe. Two years ago, according to Svetlik, VW developed a comprehensive purchasing strategy, and after a one-year preparatory phase it was adopted by the board. Presently, this strategy is being implemented with the participation of all employees. It consists of five principles: 1) structuring and optimizing supplier relations; 2) intensifying cooperation at the company level; 3) improving system support; 4) promoting personal development; and 5) building up a central employment marketing system.

According to chief buyer Svetlik, VW hopes, with these measures, to reduce development times and costs as well as contribute to a general improvement in business results. To be sure, the general tendency to reduce production depth (it would be better to speak of "optimization"), in the case of automobile producers means that a higher fraction of the net product must go to the suppliers. In this way, the suppliers, within the "cooperation between partners" framework, are drawn increasingly into the decision-making processes and therefore more deeply into responsibility-sharing.

The suppliers view this partnership with mixed feelings. For some years now, they have all been complaining quite generally, and not just with respect to VW, that they have had to accept yearly price reductions of, for example, up to 5 percent in long-term contracts for years to come. In addition, there are cases in which the producer completely

exhausts his own parts capacity, while the peaks in the rhythm of market fluctuations have to be covered by the suppliers. The suppliers are also obliged to lay open their production costs (the "glass pockets" principle). Moreover, the automobile producers can play competitors off against each other.

To this, Svetlik responds: "We are naturally conducting price talks in which we are emphasizing the potential for individual cost reductions. The results have to help both partners, even if we have minus price rounds. Suppliers are not being played off against each other. Our procurement price analysis supports this purchasing strategy as do VW's other business areas. It comes down to the lowest price. It succeeds better when there is some competition, than when I am stuck with just one supplier."

The chief VW buyer alludes here to certain large supplier companies (a classic example is Bosch) which, because of their innovation potential, enjoy a quasi-monopoly status. But even such monopolies, Svetlik believes, would be well advised to conduct sensible price policies, because they see clearly that they will not be able to keep their monopolistic positions forever.

Cost Reduction Potential on Both Sides

When suppliers complain about occasional minus rounds (see interview with the president of Gesamtmetall, Gottschol, in the 6-7 December 1991 issue), then they must be told that every business has to undergo a certain period of rationalization effects, which can partially be reflected in prices. VW itself, has set a rationalization requirement of 8 percent per year. Svetlik sees "nothing indecent" in minus rounds. In these situations, the supplier just doesn't have a price reduction thrust in front of his face. More often, the cost structure and the cost reduction potential on both sides is analyzed together and in a "partner relationship."

In practice, this can happen as described below. The VW specialists, together with the employees of the suppliers, do some "brainstorming" about a supplier part or a parts group. In this process, the problem gets into input stock, to parts frequency, parts variety, etc. In the end, the supplier might argue: "If, out of an original five parts, VW can make three, and if these parts need be are admirable minus rounds, they make us all stronger."

Free Capacities in European Suppliers

In dividing the total requirement for producer and supplier, Svetlik sees no danger for the latter: "Of course, it can't be that the supplier only gets supplied, not five times a day, but just once, and if a certain part can be changed just slightly to make it more production-friendly, then we could meet VW in the price." Often very powerful synergies emerge from these talks for VW's chief buyer: "These contracts for unknown and indefinable peaks. And the supplier is mature enough to say yes or no to an order. Many suppliers deliver to other producers as well, and could not cover VW's total requirements in any case. When, for example, a supplier seeks orders for the last 10 percent of its spray die casting machines, which are already 90 percent sold, he can also set a very favorable price.

Of course, there are always new market opportunities that are taken advantage of. When, for example, the volume markets of our European neighbors had had enormous sales losses in 1991, VW could more than get compensated for by the total German business. The automobile suppliers in neighboring European countries had gained free capacities by virtue of the economic situation and VW made favorable offers. The same is true for North America, where suppliers are under sales pressure and, for example, made favorable bids for the delivery of parts for the Golf III, which will also be made in the Mexican VW plant from mid-1992.

Despite "global sourcing," which has been practiced for some time now, Svetlik notes that at least 90 percent of VW suppliers are core, long-term suppliers. To be sure, global sourcing does not necessarily mean to replace domestic suppliers with foreign bidders, say, because of lower prices, when they are not truly replaceable. At one time, for example, VW grabbed the initiative and stuck with the German ball-bearing industry, when the lights threatened to go out in Schweinfurt. The automobile industry is not served by procuring roller bearings from abroad, which are of the most common type and available in great numbers, while the required "100,000 exotics" had not yet even been offered.

The VW buyer Svetlik emphasized that parts could not possibly be obtained from abroad with a strategy of system type construction, "just-in-time" delivery, and the belief in the advantages of new plants. What is needed is an innovative partner, "who can move with us in the right direction. Since our suppliers are linked closely with us in the development of a model and its parts right from the onset, and have to take over much of the developmental work within the framework of simultaneous engineering, I just don't go out and fetch the first developer of a part from the Far East." Nor has VW ever confronted its suppliers with Japanese price offers.

The great weight that simultaneous engineering—the joint development of a model and all its modules together with its suppliers gets—is demonstrated by the fact that VW is presently in the final phase of planning a technology center that has been built almost exclusively for simultaneous engineering. In the center, VW developers and designers from R&D, together with buyers, controllers, production and quality specialists, as well as representatives of the suppliers will work together on the drawing boards and computers.

VW relies primarily on domestic or European sources for system supplies. For 93 percent (in value) of all parts, VW in Wolfsburg has one supplier per part (single sourcing). In the case of production stock, about 1,350 suppliers join together to deliver about 70,000 parts positions. The number of suppliers is to be reduced further, especially since the Wolfsburg manufacturers in future will be using even more complete component assemblies or modules than before from a single supplier, who in turn is serviced by various sub-suppliers (modular sourcing).

The switchover from procuring single parts to complete systems resolves one aspect of the logistics problem. Nevertheless, it remains a very complicated logistical problem to

implement the "just-in-time" philosophy when producing 4,000 vehicles a day in Wolfsburg alone. "We can't keep some 40,000 tires in stock, together with the usual small and standard parts like washers," Svetlik says. However, simply because of organizational reasons, not every supplier is able to keep his parts arriving on a conveyor belt, VW needs to have external storage sites and depots, that can be filled up by rail deliveries during the nighttime. From these depots and storage sites, the plant production lines can be serviced on schedule. Svetlik, for example, has been pleading with the German Federal Railways for a supply depot in a switching yard in nearby Fallersleben.

The VW-buyer sees a substantial savings potential in still closer company ties with Audi, Seat, and Skoda. In future models, more interchangeable parts than ever will be used. The procurement of these parts would, to a great extent, be the responsibility of VW.

UK: ICL's Success Strategy Described

92WS0366A Paris L'USINE NOUVELLE in French
6 Feb 92 p 42

[Article entitled: "ICL's Recipes for Success"; first paragraph is L'USINE NOUVELLE introduction]

[Text] Product standardization, market specialization, and a strong commitment to services explain the British firm's success.

ICL's 1991 earnings will not be out until March, but it is already known they will be positive. While losses at Bull and Siemens-Nixdorf are almost endemic, and Olivetti is once again in the red, ICL will be enjoying its 10th profitable year in a row. The recipe for that kind of success contains three ingredients: a realistic market-niche strategy; an early willingness to adapt to market standards; and the awareness that service is gradually replacing hardware as a source of profits. ICL has a turnover of barely 15 billion French francs [Fr], which ranks it among the industry's medium weights. (Compare to Bull's Fr33 billion). Consequently, the company quickly realized that it could not do everything, and decided to focus on selected niches. Today a quarter of its sales are made in large outlets, where it now ranks third internationally, after IBM and NCR. Administration also accounts for a large share of its business, as do banks.

"That strong specialization," comments Jane Doorly, who is an analyst at Dataquest, "made it easier for ICL to concentrate on software and services." With 50 percent—and soon 60 percent—of its sales generated by "non-material products", compared to 20 percent for IBM and 15 percent for DEC, the British group holds the record for non-hardware computer sales.

The third reason for ICL's success is its orientation toward market standards, and particularly Unix, which it supported back in 1984. The Unix operating system accounts for a third of its sales, or, according to Dataquest, 20 to 25 percent of the European market for multistation Unix systems. That share is three times higher than Bull's.

The Japanese giant Fujitsu took over ICL as a subsidiary in mid-1990, and the British company has managed to keep the alliance balanced. "They are far ahead of us when it

comes to Unix systems and have a great deal to teach us," acknowledges Takuma Yamamoto, who is the president of the Japanese group.

Actually, although ICL depends on its hefty partner to supply its large systems, Fujitsu is distributing the British firm's work stations and minicomputers.

The balance between the two has a direct consequence: ICL, asserts Peter Bonfield, its president "remains wholly free in conducting its strategy." The takeover of Nokia's computer business, for instance, was initiated by ICL. The question is whether the situation is a lasting one, or just a honeymoon. In any event, officials at Fujitsu are already talking about boosting the synergy between the two partners.

Daimler-Benz To Compete Against SGS-Thomson in Electronics

92WS0389B Paris LE MONDE in French 5 Mar 92 p 16

[Article by Annie Kahn: "Daimler-Benz to Step Up Its 'Components' Business"]

[Text] With the drop in weapons business and the slump in the automobile industry, Daimler-Benz wants to step up its diversification in electronics. To improve its chances, the top German manufacturing group has decided to create a new company out of the combined microelectronics divisions of its AEG and Deutsche Aerospace (DASA) subsidiaries.

The new company has temporarily been named Mikroelektronik Gesellschaft mbH, and will be capitalized at 600 million German marks [DM], or about 2 billion French francs [Fr]. AEG and DASA will hold equal shares. The company will employ about 16,500 workers, and will strive for sales of GM2.4 billion this year. The company should show losses of DM100 million for the first fiscal year, but expects to show a profit in 1995.

Mikroelektronik Gesellschaft plans to sell a maximum of 20 percent of its production within the Daimler-Benz group. The company will invest DM1.5 billion in production between now and 1996, and DM1.7 billion in research and development.

Telefunken Electronic GmbH (TEG), which owns 50 percent of the electronic components company Matra MHS, will be the heart of the new firm. DASA is bringing business in "customized chips" (ASICs, or application-specific integrated circuits) made by Messerschmidt-Boelkow-Blohm GmbH (MBB), and Dornier's auto electronics.

The new concentration should add to Germany's weight in automobile components, where it already enjoys a strong position, especially with Bosch. Especially as, according to Mr. Peter Kostka, who is the president of Mercedes France, the new group is ready to make acquisitions. Compare that to the strategy of the Matra group, which is trying to divest itself of its 30 percent holdings in the Ufima auto component company. The contrast is especially interesting given that Daimler-Benz and Matra are linked financially (Daimler-Benz holds 4.9 percent of Matra's capital) and industrially (especially in digital radiotelephony) in many ways.

If the two groups did do business together, the agreement could have many repercussions. Ufima is a large purchaser of Thomson-SGS ASIC components—the “customized” components that are also the speciality of TEG. Matra affirms that it is not negotiating on that point with Daimler, even though Daimler-Benz has already shown an interest in Ufima.

Philips' Restructuring Promises Profits

92WS0389C Paris LE MONDE in French
25 Feb 92 pp 27, 29

[Article by Amsterdam correspondent Christian Chartier: “Philips Counterattacks”; first paragraph is LE MONDE introduction]

[Text] After a steady 10-year slide, the Eindhoven multinational finally went back on the offensive in 1991. Any prognosis of a lasting recovery, however, would be risky.

The recovery plan that Philips President Jan Timmer has been implementing since 2 July 1990 under the fighting name of Centurion has three objectives. They are: To straighten out the company's books, the company's business portfolio, and the company's mentalities. The 1991 fiscal year earnings that the Eindhoven group will present Thursday, 27 February will clearly indicate for the first time what some of its effects have been.

The most obvious consequence of Centurion will fall under the heading of “Personnel.” At the start of the slump on 31 March 1990 the multinational employed 293,400 people; since then, thousands have had to empty their desks and Philips should have a staff of fewer than 240,000, as planned.

The 1991 profit and loss account is also expected to bear Centurion's indelible stamp. It is likely to show a profit again, since fiscal year 1990 bore the full financial brunt (nearly 14 billion French francs [Fr]) of the company's restructuring. Moreover, the sale of Philips' remaining interests in its joint venture with Whirlpool to make large household appliances has already earned the company a windfall of Fr1.09 billion. But the most telling element will be the net operating income or loss of the different product groups. The two sectors—components and professional systems—that were gangrenous in 1990 should be recovering following amputations (see LE MONDE 6 September, 1990). Philips sold the greater part of its semiconductor and computer operations to Digital Equipment Corporation.

More Bodies To Be Hauled Off?

Jan Timmer would have something to be glad about if the two growth sectors, lighting and consumer electronics, were not also showing worrisome signs of weakness. Their operating income has been down for the year's first three quarters. The situation is so bad that the trade unions of Philips-Netherlands have been warning of what they claim is an imminent new “body count!” Management describes their warning as “speculative” and “premature,” but that has apparently not reassured anyone yet.

Moreover, it is still difficult to assess the general psychological impact of the plan. The Centurion “lean and mean”

regimen was implemented in two stages. The first involved staff cutbacks, and the second, re-education of the company's management, which was regarded as unaccountable and bureaucratic. The master helmsman Timmer recently described himself as “pleasantly surprised by the speed” at which his cultural revolution was progressing.

In any event, 1991 showed a Philips that had gone back on the offensive. Last October the Dutch group announced it would build a liquid-crystal screen plant in Eindhoven for Fr600 million. It was the first large productive investment Philips had decided to make in 18 months. Philips took over the Polish lighting manufacturer Polam Pila (see LE MONDE 12 March 1991) and announced its interest in buying the ad hoc lighting division of the American firm GTE, which would cost about \$1.5 billion.

But the most spectacular changes have occurred in consumer electronics, where Philips has announced software goals that are both clearcut and fresh.

The company's interactive compact disk will soon receive its baptism by fire in the European market. When Philips launched the disks in the American market, it signed agreements with the world's top producer of video games, Nintendo, and the world's top language school, Berlitz (part of the late Maxwell empire). Philips' recent acquisition of 25 percent of Whittle Communication's stock, which cost it Fr1 billion, will allow it to work with Time Warner in the vast industry of multimedia products.

The company has postponed the market launch of the digital cassette player (DCC), which the group considers the product of the future along with high-definition television. The delay is said to be due both to mass-production problems and to Eindhoven's decision to make sure there are enough musical titles available in DCC. On that score, its Polygram subsidiary should play as decisive a role as it did in the success of the CD. Yet Polygram is still intent on shoring up its position in movie production, in which it will invest Fr1.2 billion.

Finally, Philips has invested over Fr2 billion over the last few months in video-cassette rental chains in the United States, Belgium (Super Club, which it now controls), Great Britain (Cityvision), and the Netherlands (Videoland). Will this network of outlets eventually be used to market all the house's audiovisual devices and programs? Perhaps on Thursday Jan Timmer will place the move in the context of a comprehensive, but still fuzzy, industrial strategy.

Germany: Machine-Tool Firms Restructure

92WS0399C Paris L'USINE NOUVELLE in French
27 Feb 92 p 36

[Article by Odile Esposito: “Hard Times for the German Machine-Tool Industry”; first paragraph is L'USINE NOUVELLE introduction]

[Text] First, the eastward migration costs money, and exports to the former USSR collapsed. The industry is restructuring and forming new groups.

Sales are down 10 percent at Maho and the company has eliminated 800 jobs. The Japanese company Citizen has

taken over the small manufacturer Boley. There has been a disquieting drop in orders, which represented only 7.2 months of work in November, 1991—and barely five months for standard machine tools—compared to 9.2 months in 1990. It is clear that Germany's machine tool industry has fallen on hard times. Is faulty organization to blame? "German companies still need to make some productivity gains," says Maurice Follet, the president of the French Machine-Tool Union. But the companies heads point the finger at an economic downturn that is affecting all manufacturers of equipment.

The figures certainly give no solace to optimists. According to the annual study of the monthly AMERICAN MACHINIST, total German production, both East and West, fell 7.6 percent in value in 1991, while that of its Japanese rival grew 6 percent. But Germany is not the only one to suffer. All countries except for Asian ones showed spectacular declines, ranging from 6.4 percent in Italy, to 21 percent in the United States, and 27 percent in Great Britain.

An aggravating factor for Germany is the fact that the reunification cost more than it brought in. Many Western German manufacturers such as Maho and Rothenberger rushed to the new Laender, which were celebrated for their machine-tool know-how. They did acquire some interesting companies there, but they were overstaffed. Drema, for instance, employed 1,800 in 1989. When the Rothenberger group took over the Leipzig manufacturer in 1991, staff was halved. Moreover, the reconstruction of Eastern German industry has not given the expected lift to the equipment industry. "It takes a long time to set up the investments," says Claude Burckel, the production director of the milling machine manufacturer Deckel.

To thicken the plot, East Germany's machine-tool industry was hit hard by the collapse of its exports to the former Soviet Union. According to AMERICAN MACHINIST, Soviet imports were cut in half between 1990 and 1991, dropping from 12 billion French francs [Fr] to Fr6 billion. The situation seriously handicapped the USSR's traditional suppliers like the former GDR, especially in the area of heavy machinery.

As a result, Germany's machine-tool industry took a bath. But the pain was not equally distributed. Japan's steam-roller is doing the most damage to mass-produced machines. "The world leader Yamazaki is 2.2 times larger than Gildemeister," points out Jean Averland, who is the director of the French subsidiary. "The Japanese enjoy economies of scale, and they are conducting a ferocious price war. Their productive machine is tough to stop. So Germany's machine-tool industry can use its flexibility to regain some ground."

Indeed, Germany is not admitting defeat. And the industry is restructuring to boost productivity. Gildemeister is completely overhauling its Max Muller factory near Hanover, which specializes in assembling large machines. Maho explains some of its 800 job cuts by its new factory in Kempten, which will make parts that before were spread among three plants in a flexible, automated shop.

German manufacturers are also shoring up their positions by forming new groups. "We are trying to forge alliances with other manufacturers," Werner Babel, Maho's CEO, said recently when he announced a new collaborative agreement with the British firm Bridgeport Machines. Decker was taken over last November by the manufacturer Walter Eder, which already owns Wanderer Maschinen, a specialist in machining centers. Sometimes the alliances are international. Traub acquired Italy's Gloria last May, and the small group Hermle, which employs 750 in Gosheim, in Baden-Wuerttemberg, took the plunge by taking over Switzerland's Aciera.

With all the restructurings and new groupings, Germany's machine-tool industry will likely be hitting some rough waters in the months ahead. But it will fight tooth and nail to keep its rank as the world's second-largest producer—if necessary, by calling on all the financial support of the banks. Last July, Emag was on the verge of bankruptcy. The banks injected some cash to keep it afloat: an example that bears reflection!

France: Increased GIFAS Turnover in 1991

92WS0401A Paris AFP SCIENCES in French
27 Feb 92 p 22

[Article entitled: "GIFAS Racks Up Sales of 20 Billion Dollars in 1991"]

[Text] Singapore—According to initial estimates, the French Aeronautics and Space Industries Group (GIFAS) had "an unconsolidated turnover of about \$20 billion in 1991," said its president, Henri Martre on 24 February in Singapore. "That is a 4 percent increase over 1990," he added during a press conference at the Singapore ASIAN AEROSPACE 92 aeronautics show, which was held between 24 February and 1 March.

Mr. Martre indicated that civil hardware, including domestic and export sales, accounted for 52 percent of that sum, and military the remaining 48 percent. Mr. Martre expects 1992 sales to remain roughly the same, because of the drop in defense allocations. The combined sales of all aeronautics and space industries in the world came to \$230 billion in 1991, including \$130 billion, or 60 percent, generated by American firms alone.

On the other other hand, the economic slump pushed GIFAS's new unconsolidated military and civilian orders down 30 percent. According to initial estimates, they dropped from \$20 billion in 1990 to \$14 billion in 1991, said the group's president. Just over 200 French companies are members of GIFAS.

EAST-WEST RELATIONS

EC To Finance Center to Prevent CIS Nuclear Scientist Brain Drain

92WS0371B Paris LE MONDE in French 19 Feb 92 p 3

[Article by Lisbon correspondent Alice Illice: "The European Community To Cofinance Center to Halt the Exodus of Ex-URSS Atomic Scientists"; first paragraph is LE MONDE introduction]

[Text] The Twelve's foreign affairs ministers met Monday, 17 February in Lisbon, and approved a German, American, and Russian initiative to prevent nuclear arms from proliferating through a brain drain of ex-Soviet Union experts. The EC is willing to co-finance the plan.

The ministers spent all of Monday morning discussing the situation in the former Soviet Union. They supported a proposal of their German colleague, Hans Dietrich Genscher, to prevent the exodus of specialized nuclear scientists and researchers, who have been thrown out of work. Mr. Genscher's plan aims to keep them from offering their expertise to countries wishing to acquire nuclear weapons.

Mr. Genscher was the spokesman in Lisbon for a German-Russian-American proposal that was being presented at the same time in Moscow. It would create an international science and technology center to hire the CIS's 3,000 or so nuclear scientists capable of making an atomic bomb.

The center will be responsible for "developing, selecting, funding, and inspecting" disarmament projects and projects to convert the ex-USSR's military industry to peaceful uses. The center will pay the experts a monthly salary of at least \$1,000. That sum is considered dissuasive enough to steer them clear of the attractive offers certain countries are making them. The EC is prepared to co-finance the project, whose cost is initially estimated at \$100 million. The EC will contribute up to ECU50 million, or \$65 million.

The Twelve also considered the question of aid to the former USSR republics, and mentioned a second conference on the topic that is being prepared for May, following Washington's. In addition to all the states that attended in Washington, the EC would like to invite all CIS states and the Baltic republics.

Differences of Opinion on Yugoslavia

The Twelve focused on the situation in Yugoslavia for quite some time. According to the Portuguese foreign affairs minister, Joao de Deus Pinheiro, it triggered an "intense debate." France, Great Britain, Italy, and Greece favored an immediate lifting of the sanctions that were imposed on Serbia last year, in response to Belgrade's acceptance of the UN peace plan. However, other member states succeeded in getting the measure postponed. In the text that was adopted in Lisbon, the ministers state that they have noted "with satisfaction the constructive attitude" of Serbia. They promise to "take it into account" in revising their stance on sanctions.

The Twelve also decided to support the request of Bosnia-Herzegovina for international observers to monitor its referendum on independence scheduled for 29 February. Mr. Deus Pinheiro will meet with the president of the European Parliament on Wednesday, to ask him to select parties for the job. Each of the member states will present a similar request to its national Parliament.

The Twelve examined the thorny question of whether to recognize Macedonia, but decided that it could not be settled immediately. The hostility of Greece, which fears the republic has territorial designs on its province of the same name, is unabated. The name Macedonia does not even appear in the joint statement. Mr. Deus Pinheiro stressed

the Twelve's desire to "dedramatize" the problem. He added that, as acting president of the EC, his colleagues had asked him to work on it "with the utmost discretion."

The Twelve also reaffirmed their support of the UN peace-keeping force in Yugoslavia. The security council is expected to state its position on the force this week.

Intervening in the Near East

On the question of the Near East, the ministers asked that all "parties refrain from any action that would imperil the peace negotiations" now underway, "including pursuit of the current policy of establishing Jewish settlements in the territories occupied by Israel." They supported a suggestion by France that the EC co-organize the working groups of the multilateral negotiations in Moscow, particularly the group on arms control and regional security.

Mr. Roland Dumas deemed the EC's "exclusion" from that group's copresidency "abnormal," since Europe, he said, is directly concerned by developments in the Near East. The Twelve also came out in favor of a "system that would allow greater Palestinian participation" in the current discussions.

Spain was assigned to think about how Europe could mend its dialogue with the Arab states. After evoking Algeria, the Twelve expressed the desire to "resume contact with Morocco," to use Mr. Roland Dumas's expression. The EC would like to study the possibility of establishing a free-trade agreement with that North African country, after a decision of the European Parliament to nix a Fr363 million financial protocol earmarked for it.

France: International Foundation To Aid CIS Researchers Proposed

92WS0389A Paris LE MONDE in French 3 Mar 92 p 13

[Text] Research and Technology Minister Hubert Curien reiterated France's willingness to help prevent a drain of the CIS's science and technology workers during a meeting with Russia's new ambassador to France, Yuri Ryjov. The minister noted that economic difficulties and the industrial switchover from high-tech to common products threatened research in the CIS. Ultimately, there is a risk that unique research fields and installations, where original approaches were developed, will disappear.

The Rubbia initiative, which is named after the Nobel physics prize winner, will create an international foundation to help CIS researchers. Combined with efforts proposed by Messrs. Baker, Genscher, and Kozyrev to convert the CIS's military-industrial potential, it may provide a partial solution to the problem. The EC's council of ministers is expected to decide its position on the matter during a 2 March meeting.

EUROPE-ASIA RELATIONS

Italian, Chinese Aeronautics Joint Venture Established

92MI0273 Rome AIR PRESS in Italian 5 Feb 92 p 223

[Text] Alenia of the IRI Finmeccanica [Institute for the Reconstruction of Industry—Mechanical Engineering Finance Corporation] group has founded the Italian-Chinese company Saphire in Beijing along with the Chinese industrial group RIDA and Dragon Base Investment Ltd. of Hong Kong. An

Alenia press release dated 25 January reads as follows: "Saphire, whose Chinese name is Lan Bao Shi, will operate primarily in the field of data processing and display systems."

Initially designed to supply maintenance services for air traffic control systems, this joint venture will transfer state-of-the-art air traffic control technology to China and will provide systems, carry out installation, and set up services as well as providing after sales assistance. "Saphire also offers," the Alenia press release continues, "local businesses an opportunity to participate in the construction, assembly, and integration of Alenia components."

The release further states: "The founding of Saphire opens up a new phase in Alenia's relations with China, where it is currently installing 13 air traffic control systems in the south-east of the country."

In addition to the three systems already in operation, a secondary radar for Shenzhen airport, located 30 kilometers from Hong Kong, and a conventional secondary radar for Tianjin airport, Beijing's second airport, will be completed by the end of 1992.

In 1989, Alenia was assigned a Civil Aviation of China contract for the supply and installation of 11 radar systems in Beijing, Shanghai, Changsha, Hefei, Fuzhou, Taiyuan, Enshi, Shenyang, Chongqing, Guangzhou, and Sanya. This network will enable China to have almost complete radar coverage of the eastern part of the country. Alenia will complete the installation of the primary and secondary radar systems and related control centers by the second half of 1992. Three systems, among them the secondary radar system at Beijing's Capital Airport, were installed a few months ago and are now fully operational."

Radars for Chinese Air Traffic Control

A second contract for a secondary radar for Shenzhen airport, signed a year ago, is currently being completed 30 kilometers from Hong Kong. The radar system, which is now installed, will be completed by the end of January 1992. Another contract, signed in November 1991, concerns the supply of a conventional secondary radar for Tianjin airport. The radar system will be installed in 1992.

These three contracts represent an important recognition for Alenia at a time when competition among the main international companies in the sector is intense. An interest in the Chinese market is demonstrated by the 1990-95 air traffic control targeted project concerning the completion of a program to upgrade air traffic control infrastructures.

The program is considered to be of fundamental importance for the country's development, and has led the Civil Aviation authority to make two more calls for bids by the end of the year for the supply of new radar systems and air navigation equipment."

Thomson-LCC, Japan's Murata To Collaborate

92WS0333A Paris L'USINE NOUVELLE in French
16 Jan 92 p 19

[Article by Jean-Pierre Jolivet: "Thomson-LCC Restructuring Its Industrial Production Facilities"; first paragraph is L'USINE NOUVELLE introduction]

[Text] The Marly (Nord) Plant is shutting down its activities. The race for productivity gains may not suffice to rescue the French manufacturing plants.

Passive components will not escape the industrial productivity drive that Thomson-CSF has undertaken. The Thomson-LCC plant at Marly (Nord) is going to shut down its last low-voltage varistor production line, entailing the elimination of 63 jobs. The decision follows the halting of production of tantalum capacitors and medium-voltage varistors, which was ceded to ABB [Asea Brown Boveri], and will probably mean the shutting down of the site. The plant is an ultramodern manufacturing facility inaugurated in 1987, that probably cost more than 430 million francs[Fr], and that never reached its planned level of 600 jobs.

Like most European manufacturers of passive components, Thomson-LCC is having to resolve problems that are dangerously multiplying. In 1991, the revenue of French manufacturers shrank 5 percent, thus perpetuating its meager performance over the preceding years (an overall growth of 8.2 percent in 10 years, versus 11.6 percent for electronics as a whole). Thomson-LCC has been no exception in this regard, with a stagnation of its sales at the level of around Fr1 billion in 1990—a year that also ended in a loss of Fr174 million.

Market Shares Too Small

The deteriorating situation has induced the group's management to speed up its drive for productivity gains. With its 3,000 employees and nine plants worldwide, including four in France, Thomson-LCC is handicapped by an industrial structure that has steadily grown less suited to the constraints of the marketplace. "In this context, the management is having to think in terms of the ratio of capacitors per employee. In view of hourly costs six to seven times lower in Malaysia, we are very apprehensive as to the future of French plants," says an official of the company's union. The production of tantalum capacitors has already been transferred from Marly to Penang (Malaysia).

This restructuring of its French plants falls far short of resolving the company's major problem: Market shares that are too small, especially in the wake of the offensive being waged on the Old Continent by the Japanese giants (Matsushita, Kyocera, Murata, and TDK). In ceramic capacitors (65 percent of the market by volume), the French are in 17th place worldwide, with 2 percent of the market, and are dwarfed by Murata (25 percent) and Kyocera (20 percent). Under these conditions, it is difficult to finance research and development costs that currently run close to those of semiconductors! Thus it is that Thomson-LCC has chosen to ally itself with Murata: It will list the Japanese firm's ceramic capacitors in its catalog and develop new technologies together with Murata. In all likelihood, the collaboration will expand—and produce another reduction of industrial sites in France.

Sumitomo Buys Share in French Automation Software Firm

92WS0333B Paris L'USINE NOUVELLE in French
16 Jan 92 p 28

[Article: "Sumitomo Acquires 15-Percent Stake in Cisigraph"]

[Text] Japan's Sumitomo group has acquired 15 percent of Cisigraph, designer of the Strim 100 CAD/CAM [Computer-Aided Design and Manufacturing] software. The operation involves a reconfiguration of Cisigraph's capital structure. The 15 percent acquired by Sumitomo was ceded by BMW, which until then had controlled 46.5 percent of Cisigraph, equaling the stake held by the firm's personnel. Another 5 percent is held by the CEA [Atomic Energy Commission], and the remaining 2 percent by Aerospatiale. Sumitomo, through its subsidiary Sumitomo Electronics, has been Cisigraph's distributor in Japan since 1990. The Vitrolles-based firm had revenues totaling 100 million francs[Fr] in 1991, of which Fr90 million came from exports. It now expects to double its sales in Japan. These have totaled Fr25 million in 18 months. Following IBM's entry into the capital structure of Dassault Systemes (designer of the CATIA CAD/CAM software), and the distribution agreement between Matra Datavision and NEC, this is the third large-scale agreement between a major French CAD/CAM leader and a world-class foreign group. It represents another step in the ongoing restructuring of the CAD/CAM sector.

France's Atomic Energy Agency Creates Japanese Subsidiary

92WS0341B Paris AFP SCIENCES in French
30 Jan 92 p 30

[Text] Paris—France's COGEMA [General Nuclear Materials Company] group, a CEA [Atomic Energy Commission] subsidiary, announced in a press release on 27 January, that it has created, in Tokyo and with effect from 6 January, a subsidiary under Japanese law, the COGEMA JAPAN COMPANY. The new company will be headed by Mr. Arthur de Montalembert. Since 1984, COGEMA has maintained a liaison office responsible for "facilitating the group's relations with its customers, and in particular with the nine Japanese private electric power companies and Japan's governmental authorities."

The transformation of its liaison office into a subsidiary company—says COGEMA—reflects "the increase in the number of tasks being entrusted to this local establishment, particularly on behalf of the different subsidiaries of the group," which "occupies first place in the world nuclear-fuel-cycle products and services market." A third of COGEMA's annual revenue—21.5 billion francs in 1991—is realized abroad. Its top customer is Japan, to which it sells mainly uranium and nuclear engineering services.

German Trade Minister Urges Cooperation With Japan

92MI0386 Bonn DIE WELT in German 18 Mar 92 p 16

[Text] Federal Economics Minister Juergen Moellmann of the FDP [Free Democratic Party] has called on German businessmen to respond to the "Japanese challenge" through international joint ventures and partnerships with Japanese

firms. Addressing around 400 German and Japanese managers at a forum on Japan in Stuttgart on Tuesday, he said, "I place my hopes in cooperation, rather than confrontation."

Japan's Deputy Minister of Trade and Industry, Masahiro Koga, also pleaded for close collaboration between companies in the two countries. Germany and Japan were leading technological countries, he stated, and could therefore take on a leading role in international joint research. The president of the German Chamber of Industry and Trade (DIHT), Hans Peter Stihl, said that it was not enough for Europeans and Americans to accuse Japanese behavior alone of causing the imbalance in trade and investment flow: The West should pay more attention to endemic reasons for its competitive disadvantages. The only answer was to "show an increased presence in Japan and Asia."

Japan Reduces Computer Chip Exports to Europe, EC Increases Production

92WS0414C Duesseldorf VDI NACHRICHTEN
in German 21 Feb 92 p 26

[Article by M.G.: "Multiple-Body Dynamics Shortens Development Time; Simulation Software Runs on Bargain-Priced Personal Computers"]

[Text] VDI-N, Berlin, 21 Feb 92—The time required for experiments involving product development can be reduced with computer simulations and errors can be spotted and eliminated at an early stage. For problems involved in kinetic and dynamic analyses, multiple-body simulation systems (MBS) that provide evidence on movements and loads, for example, are increasingly being used. Up to now, the drawback of this software was that it could only be used with powerful computers that are employed by large firms.

A remedy for this situation is now promised by MBS software that was jointly developed by one of the Volkswagen subsidiaries, VW GEDAS, in Berlin and IMECH, the Institute for Mechanics in Chemnitz, since it makes it possible to run high-quality simulation software on bargain-priced personal computers and work stations as well. Dubbed "Alaska," this software makes use of a special kind of formal logic so that multiple-body dynamics problems involving combined mechanical and nonmechanical elements are also soluble. So, for instance, an electromechanics problem can be portrayed as a unit without the hitherto usual separation into the electrical and mechanical parts of the system being necessary.

Along with areas of technical application, vehicle construction, for example, the product is already being employed in biomechanics, high-performance sports, or crash mechanics. All the results of a simulation can be represented in the form of tables and worked up in vivid graphics or animation. The developers have taken into account the most important standards so that the modular software can be easily applied to different kinds of computers and integrated into available systems. VW GEDAS will demonstrate how "Alaska" works to interested parties at the CeBIT (annual trade fair in Hannover) exposition.